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BASE REALIGNMENT AND CLOSURE ENVIRONMENTAL SITE SCREENING REPORT FOR STUDY AREA 52 WITH REGULATORY COMMENT LETTER NTC ORLANDO FL

3/1/1999

HARDING LAWSON ASSOCIATES

[redacted]
00083

BASE REALIGNMENT AND CLOSURE ENVIRONMENTAL SITE SCREENING REPORT INTERIM REMEDIAL ACTION

STUDY AREA 52

NAVAL TRAINING CENTER ORLANDO, FLORIDA

UNIT IDENTIFICATION CODE: N65928
CONTRACT NO.: N62467-89-D-0317/107

MARCH 1999

SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORTH CHARLESTON, SOUTH CAROLINA
29418

FLORIDA

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Kirby B. Green, III
Secretary

February 10, 1999

Mr. Wayne Hansel
Code 18B7
Southern Division
Naval Facilities Engineering Command
P.O. Box 190010
North Charleston, South Carolina 29419-0068

RE: Final Draft, Base Realignment and Closure, Environmental Site Screening Report, Interim Remedial Action, Study Area 52, Naval Training Center, Orlando, FL

Dear Mr. Hansel:

I have completed my review of the BRAC Environmental Site Screening Report, Interim Remedial Action, for Study Area 52 (SA 52), dated January 1999 (received January 21, 1999), prepared and submitted by Harding Lawson Associates. I have the following comments that should be addressed in the report:

(1) Confirmatory sample 052S0005 had appreciable levels of 4,4'-DDD, 4,4'-DDT and dieldrin above the residential and leaching SCTLs at a depth of 2 to 2.5 feet. Figure 4-1 shows this sample location was excavated to 2 feet below land surface, but was outside the area excavated to 4 feet deep. Is the figure incorrect, or was contaminated soil left deeper than 2 feet below land surface in this area? Was the water table located at approximately 2 feet below land surface?

(2) The report states in Section 4.1.1.2 that additional immunoassay soil screening was used to screen the soil for further pesticide delineation and to test soil samples collected along the floor of the excavation to determine where additional soil needed to be removed. The locations where additional immunoassay soil screening was conducted should be provided in a figure and the results provided in a table.

(3) The report incorrectly states the leachability SCTL, based on groundwater criteria, for dieldrin as 8 µg/kg. Per Chapter 62-785, Florida Administrative Code, the leachability SCTL is 5 µg/kg.

(4) Figure 3-1 has two sampling locations labeled 52S002. One of these locations is presumed to be sampling location 52S005,

which is missing from the figure. This figure should be corrected.

(5) The report states that 1,300 tons of soil were removed from the site and hauled by rail to the Michigan Disposal Waste Treatment Plant. Was the soil characterized as hazardous waste? Documentation should be provided in the report to verify proper disposal of the excavated soil.

(6) The recommendation that no further soil investigations be conducted will be evaluated based upon the response to the comments above. I concur with the recommendation that a groundwater monitoring program continue, consisting of a source well and a downgradient well. I also concur with the recommendation that Study Area 52 remain classified as 5/Yellow until the groundwater monitoring program demonstrates that contaminants are no longer present at concentrations exceeding GCTLs.

If I can be of any further assistance with this matter, please contact me at (850)488-3693.

Sincerely,

David P. Grabka
Remedial Project Manager

cc: Lt. Gary Whipple, NTC Orlando
Barbara Nwokike, Navy SouthDiv
Nancy Rodriguez, USEPA Region 4
Richard Allen, HLA, Jacksonville
Steve McCoy, Brown & Root, Oak Ridge
Robert Cohose, Bechtel, Knoxville
Bill Bostwick, FDEP Central District

TJB _____ JJC _____ ESN _____

BASE REALIGNMENT AND CLOSURE
ENVIRONMENTAL SITE SCREENING REPORT
INTERIM REMEDIAL ACTION
STUDY AREA 52

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Unit Identification Code: N65928

Contract No. N62467-89-D-0317/107

Prepared by:

Harding Lawson Associates
2590 Executive Center Circle, East
Tallahassee, Florida 32301

Prepared for:

Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29418

Barbara Nwokike, Code 1873, Engineer-in-Charge

March 1999

CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, Harding Lawson Associates, hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/107 are complete and accurate and comply with all requirements of this contract.

DATE: March 18, 1999

NAME AND TITLE OF CERTIFYING OFFICIAL: John Kaiser
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Richard Allen
Project Technical Lead

(DFAR 252.227-7036)

NTC-ESSR.S52
PWM.03.99

EXECUTIVE SUMMARY

Harding Lawson Associates (HLA), under contract to the Southern Division, Naval Facilities Engineering Command, has prepared this Site Screening Report for Study Area 52, located at the McCoy Annex, Naval Training Center, Orlando, Florida. This report was prepared under the Comprehensive Long-Term Environmental Action, Navy Contract No. N62467-89-D-0317 as Contract Task Order No. 107.

The objective of the site screening investigation was to locate and identify any compounds that may be present at concentrations in excess of screening criteria. Initial site screening activities detected pesticides in surface soil at two locations and in groundwater in two wells at concentrations exceeding screening criteria and maximum contaminant levels. These data prompted HLA to recommend additional sampling to delineate the nature and extent of the pesticide contamination in soil and groundwater.

Data from the additional sampling led the Orlando Partnering Team to initiate an interim remedial action (IRA), consisting of the removal and disposal of pesticide-contaminated soil above the water table, and the placement of clean fill in the excavation. Subsequently, HLA installed three permanent monitoring wells to monitor groundwater quality upgradient, downgradient, and within the zone of highest pesticide contamination, and implemented a groundwater monitoring program. Samples were collected quarterly for a period of 1 year. The results of the monitoring program indicate that pesticide contamination exists within the surficial aquifer in an isolated area of the site. Dieldrin was detected in the monitoring well (OLD-52-13) installed in the area of highest soil contamination at concentrations exceeding the Florida Department of Environmental Protection's groundwater cleanup target level (GCTL) during the first three sampling events. Although the concentration of dieldrin has decreased during the monitoring period from 5.6 micrograms per liter ($\mu g/\ell$) (initial value) to 0.08 $\mu g/\ell$ (most recent sample), the dieldrin concentration still exceeds the GCTL of 0.005 $\mu g/\ell$.

Since the IRA required the removal of at least the top 2 feet of pesticide-contaminated soil (up to 4 feet in some areas), the risk of dermal exposure from soil was eliminated for future residents of the area.

HLA has also concluded that pesticide-contaminated soils no longer threaten the shallow aquifer, but recommends that the groundwater monitoring program continues until the contaminant concentrations are below the GCTL for dieldrin for two successive quarters. HLA recommends that a groundwater restriction in the surficial aquifer be imposed in an area within a radius of 50 feet from well OLD-52-13, and that the parcel be made eligible for transfer. The use of institutional controls will prevent exposure to low levels of dieldrin in groundwater until concentrations decrease through natural attenuation processes to acceptable levels.

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Naval Training Center
Orlando, Florida

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Naval Training Center
Orlando, Florida

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
bls	below land surface
CLP	Contract Laboratory Program
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethene
DDT	dichlorodiphenyltrichloroethane
DQO	data quality objective
GCTL	groundwater cleanup target level
GPR	ground penetrating radar
HLA	Harding Lawson Associates
IA	immunoassay
IRA	interim remedial action
MAG	magnetometer
MCL	maximum contaminant level
µg/kg	micrograms per kilogram
µg/ℓ	micrograms per liter
NTU	nephelometric turbidity units
OPT	Orlando Partnering Team
PCB	polychlorinated biphenyl
PVC	polyvinyl chloride
QC	quality control
ppm	parts per million
RBC	risk-based concentration
RCRA	Resource Conservation and Recovery Act
SCTL	soil cleanup target level
SVOC	semivolatile organic compound
TAL	target analyte list
TCL	target compound list
TCLP	toxicity characteristic leaching procedure
TDMD	time domain metal detector
TRPH	total recoverable petroleum hydrocarbons
TSS	total suspended solids
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

May 13, 1999

Mr. Wayne Hansel
Code 18B7
Southern Division
Naval Facilities Engineering Command
P.O. Box 190010
North Charleston, South Carolina 29419-0068

RE: Final Base Realignment and Closure, Environmental Site Screening Report, Interim Remedial Action, Study Area 52, Naval Training Center, Orlando, FL

Dear Mr. Hansel:

I have completed my review of the BRAC Environmental Site Screening Report, Interim Remedial Action, for Study Area 52 (SA 52), dated March 1999 (received March 24, 1999), prepared and submitted by Harding Lawson Associates. The document is suitable for its intent. Study Area 52 should be classified as 5/Yellow until a groundwater monitoring program has been incorporated into an approved Record of Decision (or other enforceable document) at which time the site may be categorized 4/Dark Green and be suitable for transfer.

If I can be of any further assistance with this matter, please contact me at (850)488-3693.

Sincerely,

David P. Grabka
Remedial Project Manager

cc: Lt. Gary Whipple, NTC Orlando
Barbara Nwokike, Navy SouthDiv
Nancy Rodriguez, USEPA Region 4
Richard Allen, HLA, Jacksonville
Steve McCoy, TetraTech NUS, Oak Ridge
Robin Manning, Bechtel, Oak Ridge
Alan Aikens, CH2M Hill, Orlando
Bill Bostwick, FDEP Central District

TJB _____ JJC _____ ESN _____

Harding Lawson Associates

March 23, 1999
Commanding Officer
SOUTHNAVFACENGCOM
2155 Eagle Drive
North Charleston, SC 29419-9010

ATTN: Mr. Wayne Hansel, Code 18B7

Subject: **BRAC Environmental Site Screening Report**
Study Area 52
NTC, Orlando
Contract: N62467-89-D-0317

Dear Wayne:

Enclosed is the final BRAC Environmental Site Screening Report, Study Area 52. HLA submitted response to FDEP comments on March 12, 1999 (distribution to Orlando Partnering Team), and has incorporated those comments into the text and figures of the report. With concurrence from members of the BRAC Cleanup Team regarding the recommended groundwater restriction and monitoring for dieldrin at the SA, this parcel is ready for transfer. When the report has been signed by the BCT, HLA will copy and distribute the site screening report to the normal distribution list.

Should you have any questions or need additional information, please call me at (904) 772-7688.

Very Truly Yours,

Harding Lawson Associates

R. Philipson

for Richard P. Allen
Project Technical Lead

Enclosure

cc: Nancy Rodriguez, USEPA Region IV
David Grabka, FDEP
file

Harding Lawson Associates

March 12, 1999

Commanding Officer
SOUTHNAVFACENGCOM
2155 Eagle Drive
North Charleston, SC 29419-9010

ATTN: Ms. Barbara Nwokike, Code 187300

Subject: **BRAC Environmental Site Screening Report**
Study Area 52
Response to Comments
NTC, Orlando
Contract: N62467-89-D-0317

Dear Barbara:

Attached are our responses to the FDEP comments to the Final Draft BRAC Environmental Site Screening Report, Study Area 52. We hope to discuss these responses in the OPT meeting in Orlando on March 17 and 18.

If you have any questions or need additional information, please call me at (904) 269-7012.

Very Truly Yours,

Harding Lawson Associates

Richard P. Allen
Project Technical Lead

Attachments

cc: Wayne Hansel, Southern Division
Nancy Rodriguez, USEPA Region IV
David Grabka, FDEP
Lt. G. Whipple, NTC-Public Works Officer
Robin Manning, BEI
Steve McCoy, Tetra Tech/NUS
Al Aikens, CH2M Hill
John Kaiser, HLA
file

1536 Kingsley Avenue, Suite 127, Orange Park, FL 32073 904/269-7012 Fax: 904/264-5632

McCoy, Steven

From: rallen@harding.com
Sent: Friday, March 12, 1999 12:58 PM
To: grabka_d@dep.state.fl.us; hanselwj@efdsouth.navfac.navy.mil; mccoys@ttnus.com; nwokikebr@efdsouth.navfac.navy.mil; rodriguez.nancy@epamail.epa.gov; ntc-orl.010 @smtp.cnet.navy.mil; aaikens@ch2m.com; jrmannin@bechtel.com
Cc: jkaiser@harding.com
Subject: Study Area 52 Response to Comments

Hello again, Team,

We are in the process of finalizing the SA 52 final report (pesticide site at McCoy Annex where IRA soil removal took place in 1997, currently dieldrin in groundwater in one well). Attached are the transmittal letter (rtctl52.doc) and response to comments (rtcfdep.doc) to FDEP concerns for that report. I will mail you each a hard copy today. We hope to be able to resolve any issues that remain at the OPT meeting next week.

Rick

(See attached file: RTCTL52.DOC)(See attached file: RTCFDEP.DOC)

Word 6.0 Windows/ Mac

Word 6.0 Windows/ Mac

March 12, 1999

Commanding Officer
SOUTHNAVFACENGCOM
2155 Eagle Drive
North Charleston, SC 29419-9010

ATTN: Ms. Barbara Nwokike, Code 187300

Subject: **BRAC Environmental Site Screening Report**
Study Area 52
Response to Comments
NTC, Orlando
Contract: N62467-89-D-0317

Dear Barbara:

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If you have any questions or need additional information, please call me at (904) 269-7012.

Very Truly Yours,

Harding Lawson Associates

Richard P. Allen
Project Technical Lead

Attachments

cc: Wayne Hansel, Southern Division
Nancy Rodriguez, USEPA Region IV
David Grabka, FDEP
Lt. G. Whipple, NTC-Public Works Officer
Robin Manning, BEI
Steve McCoy, Tetra Tech/NUS
Al Aikens, CH2M Hill
John Kaiser, HLA
file

RTCTL52

PROJECT REVIEW COMMENTS

NTC, Orlando Study Area 52
NTC Orlando
Final Draft BRAC Environmental Site Screening Report

Florida Department of Environmental Protection - David Grabka (2/10/99)

1. **Confirmatory sample 052S0005 had appreciable levels of 4,4'-DDD, 4,4'-DDT and dieldrin above the residential and leaching SCTLs at a depth of 2 to 2.5 feet. Figure 4-1 shows this sample location was excavated to 2 feet below land surface, but was outside the area excavated to 4 feet deep. Is the figure incorrect, or was contaminated soil left deeper than 2 feet below surface in this area? Was the water table located at approximately 2 feet below land surface?**

   Sample 052S0005 was taken at a depth of approximately 4 feet below land surface, which is the approximate depth of the water table at the time of the IRA. Figure 4-1 and Table B-2 have been revised to reflect this.

2. **The report states in Section 4.1.1.2 that additional immunoassay soil screening was used to screen the soil for further pesticide delineation and to test soil samples collected along the floor of the excavation to determine where additional soil needed to be removed. The locations where additional immunoassay soil screening was conducted should be provided in a figure and the results provided in a table.**

   The Environmental Detachment Charleston used immunoassay screening kits to guide excavation activities in the field. After each portion of the excavation was completed, IA test kits were used to confirm that sufficient soil had been removed from the floor of the excavation to meet surface soil screening criteria for chlorinated pesticides. If the IA results exceeded screening criteria, additional soil was removed. If the IA results were below screening criteria, a sample was collected along the floor of the excavation and sent to an offsite laboratory to confirm IA screening results. Thus, the map provided in Figure 4-1 serves to verify that sufficient soil was excavated to meet (residential) surface soil screening criteria, with the exception of samples 052S0005, 052S0007 and 052S0010. These samples were located in an area where soil had been excavated to a depth of approximately four feet, the depth of the water table during the IRA soil removal.

3. **The report incorrectly states the leachability SCTL, based on groundwater criteria, for dieldrin as 8 µg/kg. Per Chapter 62-785, Florida Administrative Code, the leachability SCTL is 5 µg/kg.**

   The report has been corrected to reflect the dieldrin leachability SCTL.

4. **Figure 3-1 has two sampling locations labeled 52S002. One of these locations is presumed to be sampling location 52S005, which is missing from the figure. This figure should be corrected.**

Florida Department of Environmental Protection (Continued)

The figure will be corrected.

5. **The report states that 1,300 tons of soil were removed from the site and hauled by rail to the Michigan Disposal Waste Treatment Plant. Was the soil characterized as hazardous waste? Documentation should be provided in the report to verify proper disposal of the excavated soil.**

   The soil was characterized as hazardous waste and the waste characterization report will be included in the final report as Appendix G.

6. **The recommendation that no further soil investigations be conducted will be evaluated based upon the response to the comments above. I concur with the recommendation that a groundwater monitoring program continue, consisting of a source well and a downgradient well. I also concur with the recommendation that Study Area 52 remain classified as 5/Yellow until the groundwater monitoring program demonstrates that contaminants are no longer present at concentrations exceeding GCTLs.**

   In accordance with discussions at the February OPT meeting, HLA will finalize the SA 52 report with the recommendation that a groundwater restriction be implemented around monitoring well OLD-52-10 for a radius of 50 feet in the shallow aquifer until dieldrin concentrations decrease below the GCTL. HLA will also recommend that the property be reclassified to 4/Dark Green and be made eligible for transfer. This is consistent with the manner in which Study Area 3 on the Main Base was dealt with when it was made eligible for transfer.

1.0 STUDY AREA 52, FORMER ENTOMOLOGY LAB, MCCOY ANNEX

1.1 INTRODUCTION. This report summarizes information gathered as a result of site screening activities conducted at Study Area 52 and interim actions taken to remove the source of the contamination. The initial phase of screening fieldwork began in March 1996. Because of exceedances of screening criteria for pesticides detected in both the soil and groundwater at that time, additional site screening was performed to determine the nature and extent of contamination. The additional site screening was followed by an interim remedial action (IRA), which consisted of the removal of contaminated soil. The IRA was completed in September 1997.

1.2 BACKGROUND AND CONDITIONS. Study Area 52 is located in the central part of McCoy Annex of Naval Training Center, Orlando (Figure 1-1). The focus of the site screening investigation in this Study Area was the area in the vicinity of former Building 7261. At one time Building 7261 was used as an entomology laboratory (ABB Environmental Services, Inc. [ABB-ES], 1995). Available drawings for Building 7261 indicate that it was built between 1956 and 1962 and was demolished in the early 1980s. A 1972 Master Plan for McCoy Annex indicates that the building was used for covered storage, and a 1973 drawing indicates that this building was the Maintenance Shop, 1,616 square feet in size, and was constructed with a concrete foundation, concrete floor, and wood walls. The building was located south of Building 7257.

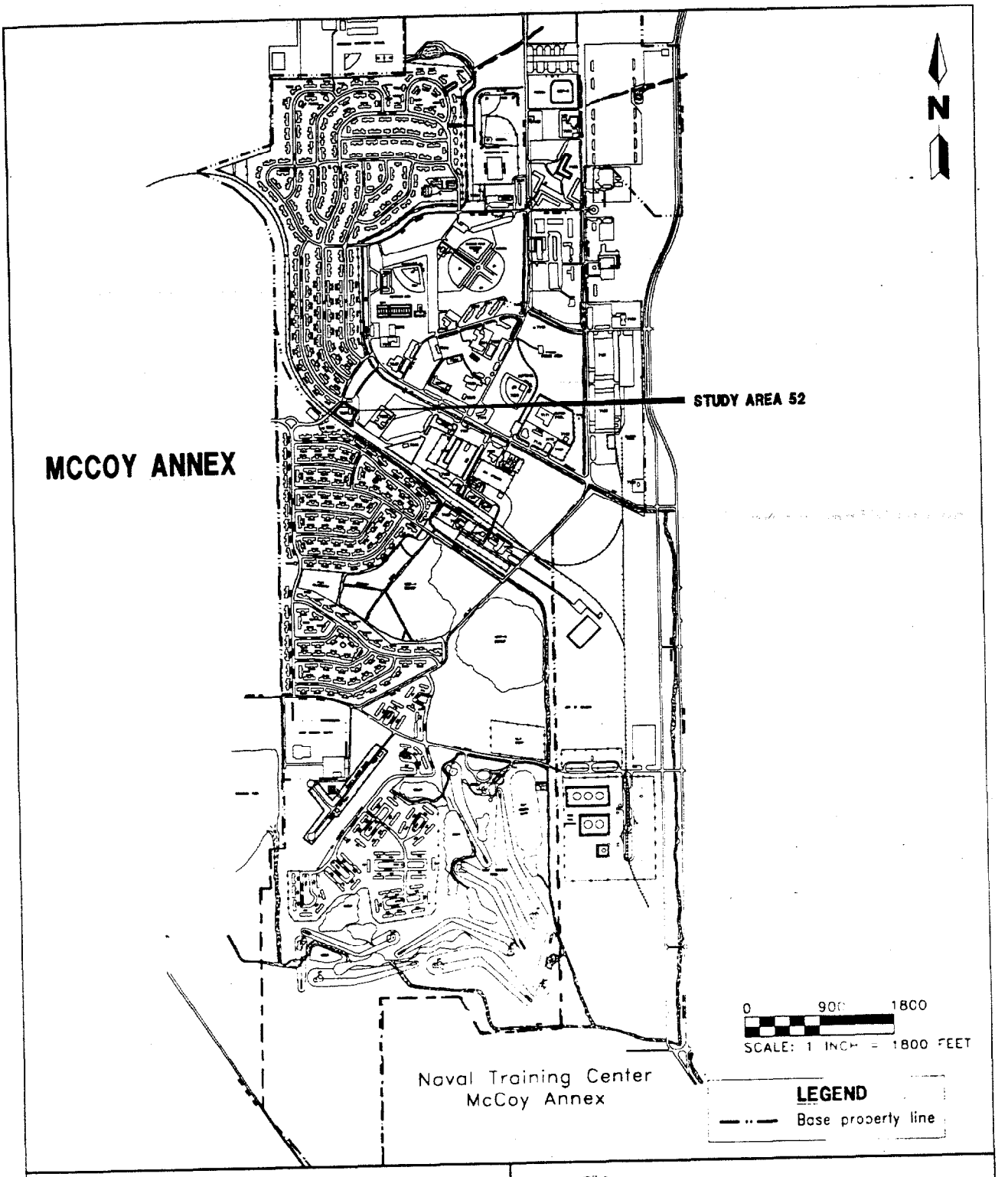

FIGURE 1-1
STUDY AREA LOCATION

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BASE REALIGNMENT AND CLOSURE
ENVIRONMENTAL SITE
SCREENING REPORT
STUDY AREA 52
NAVAL TRAINING CENTER
ORLANDO, FLORIDA

2.0 INITIAL SITE SCREENING INVESTIGATION

The objective of the site screening program at Study Area 52 was to evaluate the nature and extent of potential contamination that may have resulted from the use of Building 7261 as an entomology laboratory. To accomplish this objective, geophysical surveys were conducted to locate potential demolition debris or other evidence of the former building, and soil and groundwater samples were collected from within or downgradient from potentially impacted areas and analyzed for various parameters. Proposed field activities were presented in the Site Screening Plan, Former Air Force Sites, Addendum 2 (ABB-ES, 1995).

2.1 FIELD PROGRAM. The initial site screening investigation conducted at Study Area 52 is described below.

2.1.1 Geophysical Survey Prior to the start of the field program, Harding Lawson Associates (HLA) established an arbitrary grid coordinate system, as shown in Appendix A. The grid system was oriented along magnetic north and parallel to the north-south system of roads in the area. The grid consisted of a series of stakes and pin flags located within an area 150 by 100 feet, with nodes established at 10-foot intervals over the survey area with a cloth measuring tape and level. The geophysical survey was conducted at Study Area 52 on March 22, 1996. The various techniques included magnetometer (MAG), time domain metal detector (TDMD), and ground penetrating radar (GPR).

The magnetic method is a versatile geophysical technique used for locating buried debris by mapping local distortions in the earth's magnetic field produced by buried magnetic objects (steel and other magnetic materials). The MAG survey was conducted along a 10-foot measurement grid with traverses in a north-south orientation.

A TDMD survey was conducted along the established north-south traverses at 5-foot intervals. Data were acquired along each traverse at the rate of 0.66 readings per foot. The TDMD is designed to map buried conductive objects, such as metal tanks, drums, demolition debris, and utilities.

A GPR survey was completed to evaluate MAG/TDMD anomalies mapped during those investigations. The GPR technique is effective in mapping buried utilities and delineating the boundaries of buried waste materials or abandoned landfills. GPR profiles were developed along traverses 5 feet apart. The footprint of the former building was not located by geophysical surveys, nor was demolition debris identified. Appendix A presents the results of the geophysical survey.

2.1.2 Surface Soil Investigation Four surface soil samples (52S00101 through 52S00401) were collected in April 1996 in the area south of Building 7257 (i.e., near the former location of Building 7261). Sample locations were biased toward the north, east, south, and west sides of the former Building 7261, as determined from engineering drawings (Figure 2-1). Soil samples were collected using stainless steel hand tools and were submitted for Contract Laboratory Program (CLP) target compound list (TCL) semivolatile organic compounds (SVOCs), TCL pesticides and polychlorinated biphenyls (PCBs), total recoverable petroleum hydrocarbons (TRPH), and target analyte list (TAL) inorganic compounds analysis,

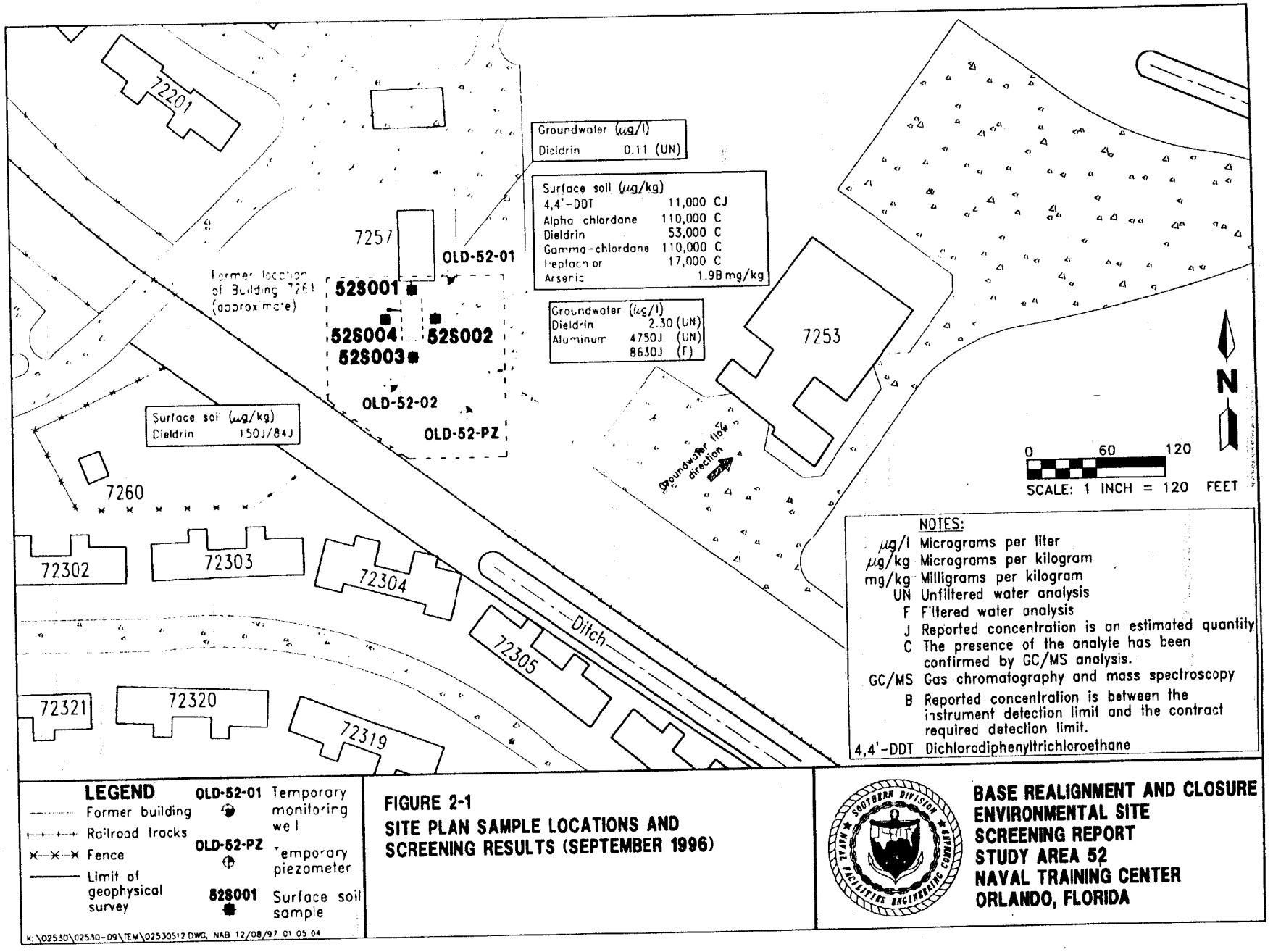

FIGURE 2-1
SITE PLAN SAMPLE LOCATIONS AND SCREENING RESULTS (SEPTEMBER 1996)

BASE REALIGNMENT AND CLOSURE
ENVIRONMENTAL SITE SCREENING REPORT
STUDY AREA 52
NAVAL TRAINING CENTER
ORLANDO, FLORIDA

in accordance with U.S. Environmental Protection Agency (USEPA) Level IV data quality objectives (DQOs). Appropriate quality control (QC) samples were collected to support this sampling effort.

2.1.3 Groundwater Monitoring Well Installation and Sampling Two temporary monitoring wells were installed at locations OLD-52-01 and OLD-52-02 to enable groundwater sample collection. One temporary piezometer was also installed at location OLD-52-PZ. This piezometer and the two temporary wells were used to determine the groundwater flow direction. Well and piezometer locations are shown on Figure 2-1. Borings were completed using a hand auger to depths sufficient to install the temporary wells to intercept the water table. Slotted 2-inch-diameter polyvinyl chloride (PVC) well screen was lowered into each boring. The wells were then purged and sampled using the low-flow technique. Static water-level readings were taken in each well and piezometer. The well screens were withdrawn and the boreholes were backfilled with native soil following sample collection.

Depth to water in this Study Area was approximately 4 feet below land surface (bls). Based on evaluation of depth to water measurements in the two wells and one piezometer, the groundwater flow direction in the vicinity of Study Area 52 was to the northeast; therefore, well OLD-52-01 was downgradient of the former building location.

The wells and piezometer were screened with a flame ionization detector during installation and sampling, and two readings were noted. During installation of OLD-52-PZ, a reading of 2 parts per million (ppm) was recorded. Also, when well OLD-52-01 was opened to collect a groundwater sample, a reading of 1 ppm was recorded. These values are very low and do not indicate soil or groundwater contamination by volatile organic compounds (VOCs).

Both a filtered and an unfiltered groundwater sample were collected at each groundwater sampling location (for the sample identifier, "G" designates an unfiltered sample and "H" designates a filtered sample). Groundwater samples were submitted for CLP TCL VOCs, SVOCs, pesticides/PCBs, TRPH, TAL inorganics, and total suspended solids (TSS) analysis in accordance with USEPA Level III DQOs. The filtered groundwater samples were submitted for laboratory analysis of CLP TAL inorganics only. Appropriate QC samples were collected to support this sampling effort.

2.2 RESULTS. The results of initial site screening investigation activities at Study Area 52 are discussed below. The soil analytical results were evaluated by comparing their respective concentrations to (1) basewide soil background concentrations for McCoy Annex (inorganic compounds only); (2) Florida Department of Environmental Protection's soil cleanup target levels (SCTLs) for residential soil or (if applicable) leachability-based SCTLs; and (3) USEPA Region III risk-based concentrations (RBCs). Groundwater analytical results were compared to (1) basewide groundwater background concentrations (inorganic compounds only); (2) Florida groundwater cleanup target levels (GCTLs); (3) USEPA maximum contaminant levels (MCLs); and (4) USEPA Region III tap water RBCs. Following are the significant findings from this evaluation. The soil and groundwater analytical results are provided in Appendices B (Summary of Positive Detections) and C (Summary of Analytical Results). Only soil samples 52S00101 through 52S00401 and

groundwater samples 52G00101 and 52G00201 (and the filtered equivalents) are included in the initial site screening investigation discussion below.

2.2.1 Surface Soil SVOCs and PCBs were not detected in soil samples at concentrations exceeding screening values. 4,4'-Dichlorodiphenyltrichloroethane (DDT), alpha-chlordane, gamma-chlordane, dieldrin, and heptachlor were detected at concentrations above their respective screening values in at least one of two sample locations (Figure 2-1). Arsenic was detected at a concentration equal to the basewide background concentration and below the RBC for industrial soil.

4,4'-DDT, alpha-Chlordane, gamma-Chlordane, Dieldrin, and Heptachlor. 4,4'-DDT, alpha-chlordane, gamma-chlordane, dieldrin, and heptachlor were detected in one surface soil sample, 52S00201. Dieldrin was also detected in a second sample and its duplicate, 52S00301 and 52S00301D.

The concentration of 4,4'-DDT at location 52S00201 was 11,000 micrograms per kilogram (μg/kg). This exceeds the residential SCTL and RBC values, but is below the corresponding industrial SCTL (12,000 μg/kg) and industrial RBC (17,000 μg/kg). The reported concentrations of alpha-chlordane (110,000 μg/kg), gamma-chlordane (110,000 μg/kg), and heptachlor (17,000 μg/kg) at location 52S00201 exceed their respective SCTL and RBC for residential and industrial soils. Dieldrin was detected in groundwater above the GCTL; therefore, dieldrin concentrations in soil were compared to the leachability-based SCTL of 5 μg/kg. The concentration of dieldrin at location 52S00201 was well above its respective leachability-based SCTL. Dieldrin at locations 52S00101 and 52S00301 and their respective duplicates slightly exceeded the leachability-based SCTL.

Samples 52S002 and 52S003 were collected from the east and south sides of the former location of the entomology laboratory building. Analytical results from samples collected from the west and north sides of the former building reported no compounds above screening criteria.

2.2.2 Groundwater No VOCs or SVOCs were detected at concentrations exceeding screening criteria at either groundwater sample location. One pesticide, dieldrin, was detected at concentrations of 0.11 micrograms per liter ($\mu g/\ell$) and 2.3 $\mu g/\ell$ in wells OLD-52-01 and OLD-52-02, respectively, exceeding GCTLs and the RBC for tap water. Concentrations in the corresponding filtered samples were below applicable screening values. The presence of dieldrin in groundwater at Study Area 52 in unfiltered samples may be related to the presence of suspended particulates, rather than representing dissolved concentrations. The suspended particulates were likely present because the temporary wells had no sandpack.

The background concentration of one inorganic compound, aluminum, exceeded the background screening value in well OLD-52-02, but was well below the RBC for tap water. Aluminum concentrations detected at both well locations are the same order of magnitude as the basewide background aluminum concentration. The somewhat elevated aluminum concentrations may be related to suspended solids in the groundwater samples. Turbidity values noted during sampling of well OLD-52-02 remained relatively high (39.6 nephelometric turbidity units [NTUs] prior to sampling), and the reported TSS concentration from this location was 57 milligrams per liter.

3.0 ADDITIONAL SITE SCREENING INVESTIGATION

Based on the initial screening results, the Orlando Partnering Team (OPT) authorized additional investigations. The focus of the additional investigation was the vicinity of the former location of Building 7261. The purpose of the additional screening was to further evaluate the nature and extent of the chlorinated pesticides detected in surface soil and groundwater samples collected during the initial site screening investigation.

3.1 FIELD PROGRAM. The additional site screening investigation conducted at Study Area 52 occurred in December 1996 and is described below.

3.1.1 Immunoassay Soil Screening A sampling grid was established and expanded as necessary to delineate the nature and extent of pesticides in surface soil (Figure 3-1). Surface soil samples were collected from 0 to 1 foot bls, and analyzed in the field using immunoassay (IA) test methodology. A pesticide test kit capable of detecting chlordane and all structurally similar compounds (i.e., chlorinated pesticides in the Method 8080 list, except for 4,4'-DDT, 4,4'-dichlorodiphenyldichloroethane [DDD] and 4,4'-dichlorodiphenyldichloroethene [DDE]) was selected for this investigation. IA testing for DDT, DDD, and DDE was not the primary concern based on the magnitude of the previous detections at these locations. In addition, during the initial sampling, DDT was detected at both sample locations where the other pesticides were found and, therefore, was assumed to be present with the other compounds. The IA test kit was semiquantitative, in that it only provided a total concentration of the target compounds and did not quantify concentrations of individual compounds. The measured concentration was compared to three known colorimetric standards (300 µg/kg, 1,500 µg/kg, and 9,000 µg/kg) to determine the concentration range of the sample.

Three subsurface soil samples were collected and analyzed in the same manner as the surface soil samples to characterize the vertical extent of pesticides. Initially, a vertical delineation was to be performed in the center of the area with the highest pesticide concentrations. However, pesticide detections were more extensive than anticipated, and since many of the surface soil samples exceeded the highest (9,000 µg/kg) IA colorimetric standard, the area of highest pesticide concentrations was not defined. Instead, vertical delineation was performed at three locations in the center of Study Area 52. At two of these locations, IA measured total pesticides greater than 9,000 µg/kg, and soil samples were collected at 1-foot intervals to a depth of 4 feet bls. The third location had only one subsurface soil sample collected from 2 to 3 feet bls.

3.1.2 Confirmatory Soil Screening Ten of the 75 IA samples (13 percent) were split and submitted to a Florida certified laboratory for analysis of pesticides using USEPA Method 8080. Sample 52S04401 was collected from a location with elevated concentrations of chlorinated pesticides and was submitted for Toxicity Characteristic Leaching Procedure (TCLP) analysis for pesticides to determine if the soil should be considered a Resource Conservation and Recovery Act (RCRA) hazardous waste.

3.1.3 Groundwater Monitoring Well Installation and Sampling Three temporary observation wells (52-PZ-01, 52-PZ-02, 52-PZ-03) were installed to collect potentiometric surface elevation data. Groundwater elevation data indicated a

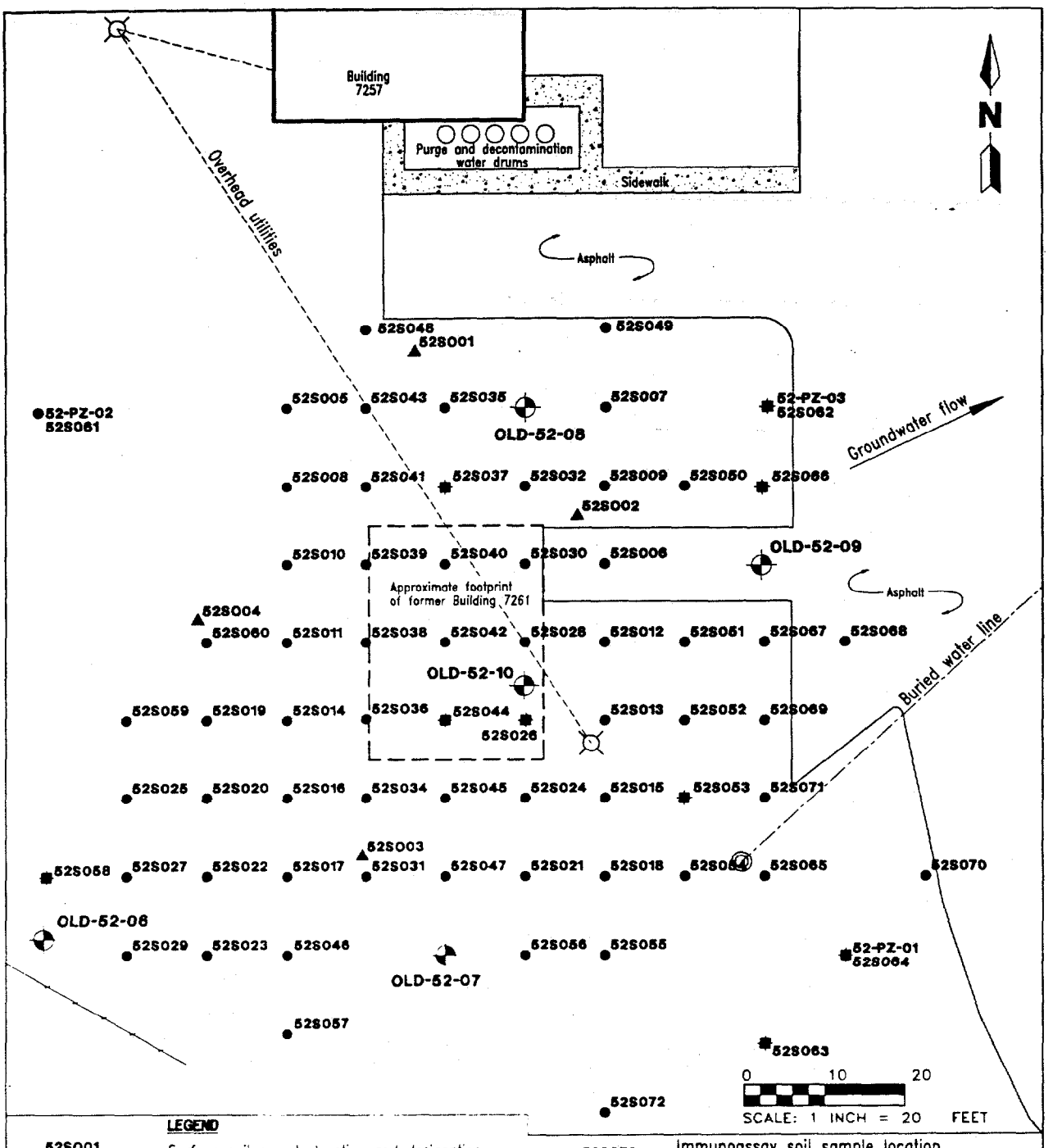

FIGURE 3-1
SITE PLAN SAMPLE LOCATIONS
(FEBRUARY 1997)

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BASE REALIGNMENT AND CLOSURE
ENVIRONMENTAL SITE
SCREENING REPORT
STUDY AREA 52
NAVAL TRAINING CENTER
ORLANDO, FLORIDA

northeast flow direction for the shallow portion of the surficial aquifer, confirming initial site screening investigation results.

"Microwell" technology was utilized to install five permanent groundwater monitoring wells (OLD-52-06 through OLD-52-10). All monitoring wells were constructed of ½-inch-diameter, PVC prepacked screen and riser. The monitoring wells were installed using a TerraProbe℠, a van-mounted drilling device. The monitoring wells were constructed with six feet of 0.010-inch slotted screen prepacked with 20/40 silica sand. The monitoring wells were installed to a depth that allowed the screen to straddle the water table. Microwell construction is illustrated on Figure 3-2.

One microwell (OLD-52-10) was installed in the area believed to contain the highest concentrations of pesticides in surface soil determined from IA testing. The remaining four monitoring wells were positioned downgradient and upgradient of OLD-52-10 (Figure 3-1).

Each monitoring well was developed and sampled using a low-flow purging technique to establish a low sample turbidity. Four of the five wells had final sample turbidities of less than 10 NTUs. The most upgradient well, OLD-52-06, had a final sample turbidity of 65.5 NTUs. Only unfiltered groundwater samples were collected, and all groundwater samples were submitted to a Florida certified laboratory for analysis of pesticides by USEPA Method 8080.

3.2 RESULTS. The results of the additional site screening investigation activities at Study Area 52 are discussed below. A summary of the chlorinated pesticide IA testing results for the 75 soil samples is presented in Appendix D. A comparison between the on-site IA soil results and the off-site confirmation soil analytical results is also presented in Appendix D. The soil and groundwater analytical results for the pesticides analyses are provided in Appendices B (Summary of Positive Detections) and C (Summary of Analytical Results).

3.2.1 Immunoassay Soil Screening The results of the IA testing were used to generate a contour map (Figure 3-3) representing the estimated chlorinated pesticide concentrations in surface soil. As shown, there are several areas where the total chlorinated pesticide concentration in the surface soil is greater than the highest (9,000 µg/kg) colorimetric standard. The location of former Building 7261 appears to be the nucleus of the highest pesticide concentrations. Pesticide contamination extends to the north, east, and southeast of the former building location. Isolated samples with high chlorinated pesticide concentrations were also found southwest of the former building. These samples are contained within the boundaries of the asphalt road and driveway. Both soil samples located beneath the asphalt tested negative for pesticides by IA, including 52S00601, located near the center of the high pesticide detections.

The three subsurface locations chosen for vertical delineation were 52S026, 52S037, and 52S069 (Figure 3-1). Subsurface location 52S026 had 9,000 µg/kg total chlorinated pesticides at the interval 3 to 4 feet bls, just above the water table. Even though sample 52S03702 had a total chlorinated pesticide concentration of greater than 9,000 µg/kg from 1 to 2 feet bls, sample 52S03703,

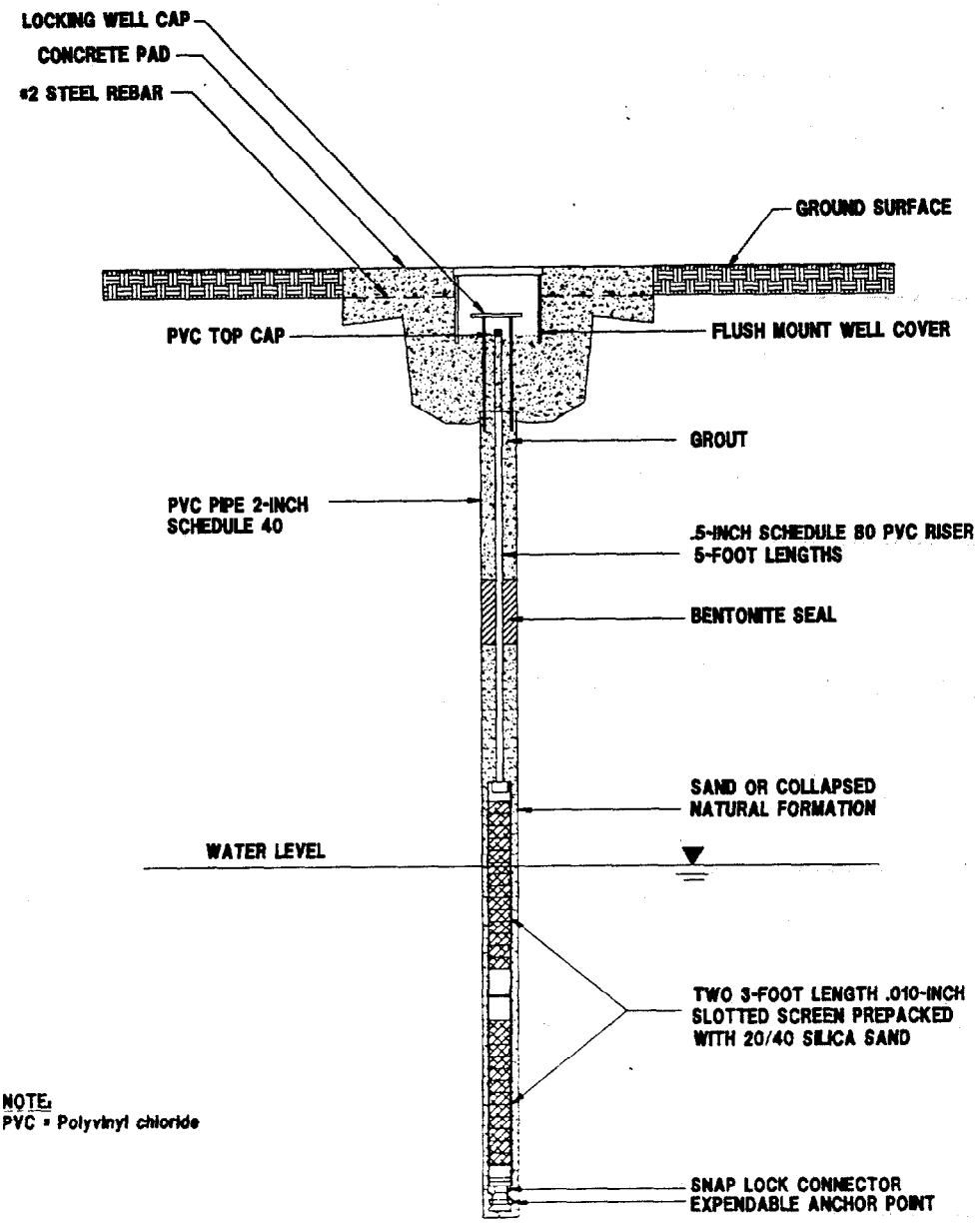

FIGURE 3-2
MICROWELL CONSTRUCTION DIAGRAM

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BASE REALIGNMENT AND CLOSURE
ENVIRONMENTAL SITE
SCREENING REPORT
STUDY AREA 52
NAVAL TRAINING CENTER
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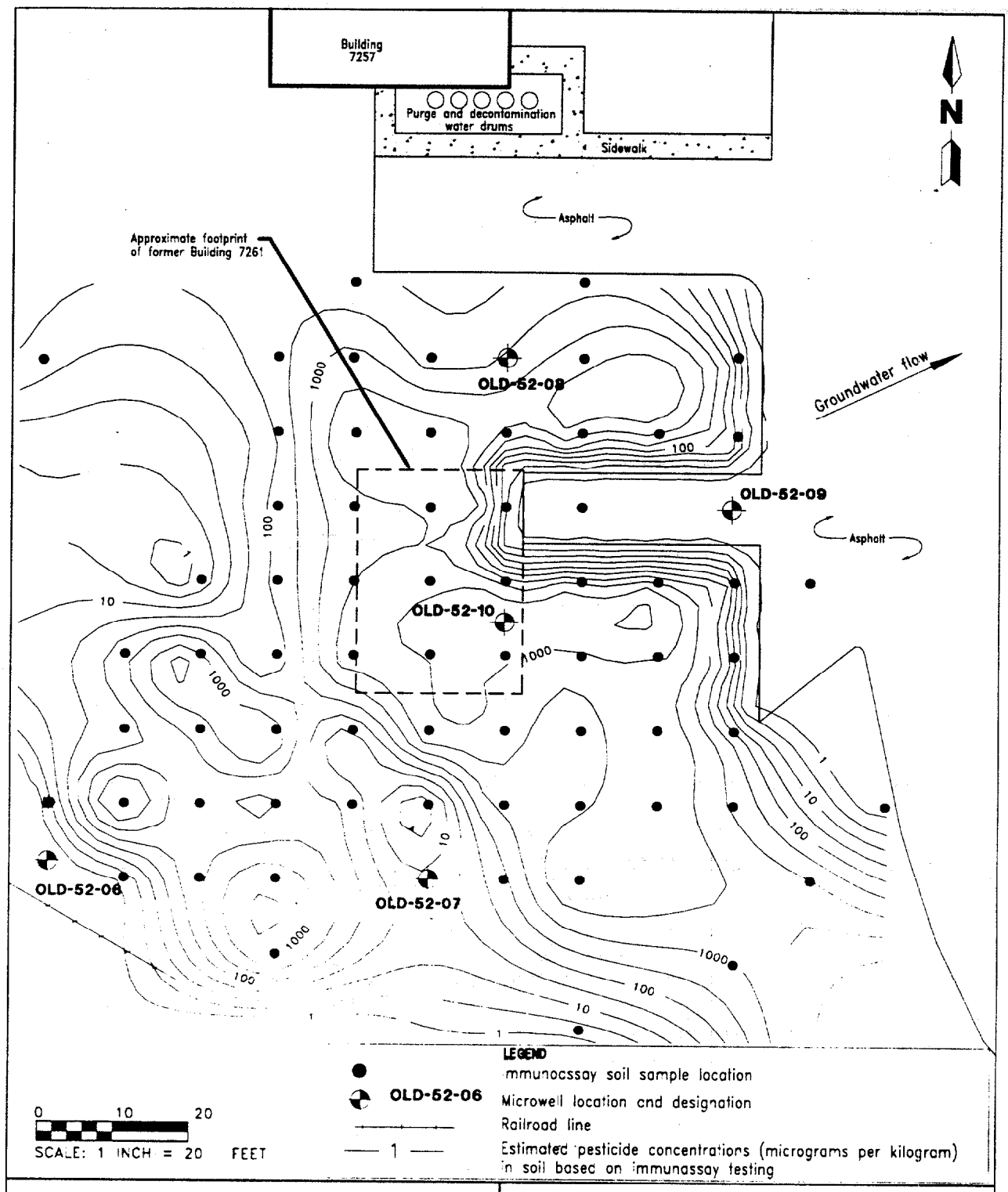

FIGURE 3-3
TOTAL PESTICIDE CONCENTRATION CONTOURS, IMMUNOASSAY TESTING

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BASE REALIGNMENT AND CLOSURE ENVIRONMENTAL SITE SCREENING REPORT STUDY AREA 52 NAVAL TRAINING CENTER ORLANDO, FLORIDA

from 2 to 3 feet bls, did not detect any pesticides with IA testing. At sample location 52S069, moderate surface soil concentrations of total pesticides were detected (1,050 µg/kg), but subsurface samples were still analyzed from 2 to 3 feet bls to determine if pesticides were present at depth. No pesticides were detected in that sample (52S06902).

3.2.2 Evaluation of Confirmation Samples The 10 samples and duplicate submitted for confirmatory laboratory analysis were selected from samples with a wide range of field-screened total chlorinated pesticide concentrations to provide information on the overall quality of the field screening program.

Both the IA screening and off-site confirmatory results were evaluated using a "presence/absence" test, since the primary objective of the field screening program was to determine whether or not pesticides were present at concentrations above regulatory criteria. The screening value used for this evaluation was 70 µg/kg. This concentration was consistent with the detection limits of the IA kits and was also well below the industrial SCTL for dieldrin (300 µg/kg). This screening value was highly conservative, as it represents a total concentration of chlorinated pesticide compounds. It was unlikely that the pesticides present were only those with such low SCTLs, particularly since dieldrin concentrations as a percentage of total pesticides for all confirmation samples averaged only 19 percent (range 0 to 40 percent). As shown in Appendix D, the comparability of chlorinated pesticide IA testing and USEPA Method 8080 analytical results (total chlorinated pesticide compounds), when compared to the screening value of 70 µg/kg, was consistent for 9 out of 10 samples (90 percent). One false negative appeared in sample 52S03703. This false negative was borderline, considering the conservative screening value of 70 µg/kg is very close to the actual chlorinated pesticide compounds total of 71 µg/kg. However, dieldrin (21 µg/kg) did exceed the leachability-based SCTL (5 µg/kg). No false positives occurred.

As dieldrin, heptachlor, gamma-chlordane, and 4,4'-DDE were detected in groundwater above the GCTLs, samples were compared to the leachability-based SCTLs for these pesticides. The leachability-based SCTL for gamma-chlordane (4,100 µg/kg) was higher than the residential SCTL (300 µg/kg); therefore, the residential SCTL for gamma-chlordane took precedence over the leachability-based SCTL.

As shown in Appendix B, 9 of the 11 soil samples (seven locations) submitted to the laboratory had exceedances of Florida residential SCTLs for one or more chlorinated pesticide compounds. The soil sample with the highest concentrations of pesticides was 52S05301, which exceeded the Florida industrial SCTLs for the compounds dieldrin, alpha-chlordane, 4,4'-DDT, and heptachlor epoxide by an order of magnitude or more.

Sample 52S04401 was submitted to a Florida certified laboratory for TCLP pesticide analysis. The sample was located in a portion of the site with the highest concentrations of pesticides, approximately 11 feet upgradient from monitoring well OLD-52-10. The TCLP pesticide analytical results indicated that the sample was not RCRA hazardous waste based on the toxicity characteristic. The nondetections of TCLP pesticide compounds in the TCLP extract for this sample appear to be consistent with the low solubility, high soil-water partition coefficients, and relative immobility of these compounds.

3.2.3 **Groundwater** As shown in Appendix B, pesticide detections were only found in one groundwater sample in the additional sampling investigation (52G01001). Dieldrin, heptachlor, gamma-chlordane, 4,4'-DDE, and endrin ketone were all detected. The concentration of dieldrin, heptachlor, gamma-chlordane, and 4,4-DDE exceeded GCTLs, including the MCLs for heptachlor and chlordane. This groundwater sample (52G01001) had a field turbidity value of less than 3 NTUs, leading to the conclusion that suspended particulates in the sample were not a contributing factor to the observed pesticide concentrations.

As discussed previously in this chapter, groundwater flow was confirmed to flow in a northeast direction. Groundwater sample 52G00901 was collected just over 30 feet downgradient of 52G01001, and no pesticides were detected. It appears groundwater contamination is isolated to a relatively small area. This is likely due to the high retardation factor expected for these compounds.

4.0 INTERIM REMEDIAL ACTION

As described in Chapters 2.0 and 3.0, above, chlorinated pesticides were detected in soil and groundwater at concentrations exceeding screening criteria in the vicinity of the former location of Building 7261. The focus of the IRA was to excavate and properly dispose of the pesticide-contaminated soil that exceeded Florida's residential and leachability-based SCTLs.

4.1 FIELD PROGRAM. The Environmental Detachment Charleston was contracted by Southern Division, Naval Facilities Engineering Command to perform the IRA in September 1997 at Study Area 52. A comprehensive report of the activities performed by the Environmental Detachment Charleston is found in their completion report (Appendix E). Only those portions of the report that apply to Study Area 52 are included in Appendix E. The role of HLA during the IRA was for limited oversight and field surveying of the excavation and sample locations. A brief description of the IRA conducted at Study Area 52 is described below.

4.1.1 Soil Removal The Environmental Detachment Charleston was responsible for removing contaminated soil, determining the limits of the excavation, disposing of the soil in an approved manner, and backfilling the excavation with certified clean fill. The decision not to remove any soil below the water table was made by the OPT. Appendix F contains a photographic record of the IRA activities.

4.1.1.1 **Soil Excavation** The excavation area was approximately a 120-foot by 80-foot area bordered by an asphalt driveway to the north, an asphalt roadway to the east, an abandoned railway to the southwest, and grass to the west and south. The boundaries of the excavation area are shown on Figure 4-1. The excavation was approximately 2 feet deep around the perimeter and sloped down to approximately 4 feet in the center and in the southwest corner. More than 1,300 tons of soil were removed from the site. The soil was characterized as hazardous waste (Appendix G) and was hauled by rail to the Michigan Disposal Waste Treatment Plant in Belleville, Michigan for disposal.

During the excavation, four out of five previously installed monitoring wells were abandoned because they were located within the area of excavation. The monitoring wells had been installed as microwells and consisted of ½-inch-diameter, PVC prepacked screen and riser. Monitoring well OLD-52-06 borders the southwest corner of the excavation and was not abandoned.

4.1.1.2 **Immunoassay Soil Screening** The soil excavation contractor used the same IA test kits as HLA had used during the previous IA screening at Study Area 52. The IA test kits were used to screen the soil for further pesticide delineation. The IA test kits were capable of detecting chlordane and all structurally similar compounds (i.e., chlorinated pesticides in the USEPA Method 8080 list, except for 4,4'-DDT, 4,4'-DDD and 4,4'-DDE). The IA test kits were semi-quantitative, in that they only provided a total concentration of the target compounds and did not quantify concentrations of individual compounds.

After removal of the upper 2 feet of soil, IA kits were used to test soil samples collected along the floor of the excavation to determine where additional soil needed to be removed. This process was repeated until either (1) sample concentrations were below the 600 µg/kg calibration standard used with the IA

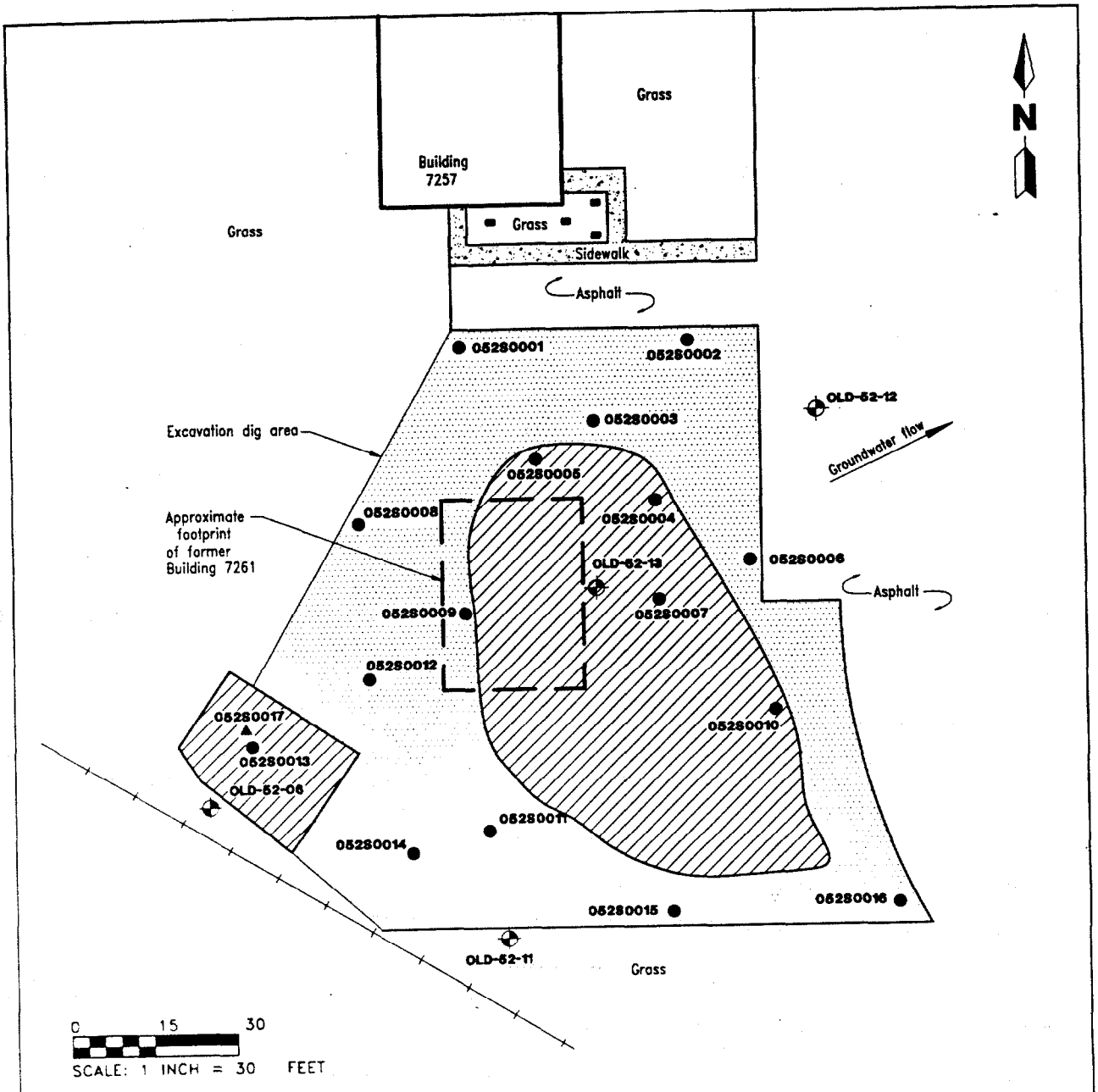

FIGURE 4-1
SITE PLAN SAMPLE LOCATIONS
(NOVEMBER 1997)

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BASE REALIGNMENT AND CLOSURE
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SCREENING REPORT
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NAVAL TRAINING CENTER
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kits or (2) the excavation had reached the water table. Contaminated soil below the water table was not removed.

4.1.1.3 **Confirmatory Soil Screening** Evidence of groundwater contamination was found in previous investigations. The leachability-based cleanup goals apply to the compounds dieldrin, heptachlor, and 4,4'-DDE because concentrations of these compounds were detected above Florida MCLs or GCTLs in previous groundwater sampling events.

Seventeen confirmatory samples were collected throughout the excavation (Figure 4-1). All confirmatory samples were submitted by the subcontractor to a Florida certified laboratory for analysis of pesticides using USEPA Method 8080. The confirmatory samples were used to verify target cleanup levels.

The first round of confirmatory sampling indicated an area of concern. Sample 052S0013 contained dieldrin at a concentration of 526 µg/kg, exceeding the leachability-based SCTL for dieldrin of 5 µg/kg at 2 feet bls. A 20-foot by 30-foot area approximately 4 feet deep was excavated around sample 052S0013 in the southwest corner of the site. A sample was then collected as a composite from the walls surrounding the excavation.

4.1.1.4 **Soil Disposal** Excavated soil was hauled by truck and unloaded into rail cars. The soil was then hauled by rail to the Michigan Disposal Waste Treatment Plant to be disposed of in an approved manner.

4.1.1.5 **Soil Filling and Grading** When confirmatory sample analysis determined that the limits of the excavation above the water table did not exceed Florida SCTLs, the area was backfilled, compacted, graded, reseeded, and mulched with hay. The backfill material was Florida certified clean soil.

4.1.2 Groundwater Monitoring Well Installation and Sampling Three permanent shallow monitoring wells (OLD-52-11, OLD-52-12, and OLD-52-13) were installed after the IRA was completed. All three monitoring wells were screened to bracket the water table (Figure 4-1). OLD-52-13 was located in the vicinity of the former location of OLD-52-10 to ensure one well was located in the area where pesticides had previously been detected in groundwater prior to the IRA. Well OLD-52-12 was located downgradient (northeast) from OLD-52-13, and OLD-52-11 was located upgradient (southwest) from OLD-52-13.

Following monitoring well installation and development, the newly installed wells were purged to achieve maximum development of the filter pack and sampled using the low-flow technique. Samples were collected initially in October 1997 and approximately quarterly thereafter (February 1998, April 1998, and September 1998). All groundwater samples were submitted to a Florida certified laboratory for analysis of pesticides by USEPA Method 8080.

4.2 RESULTS. The results of the soil confirmatory sampling and the groundwater sampling are discussed below. The soil and groundwater analytical results are provided in Appendices B (Summary of Positive Detections) and C (Summary of Analytical Results).

4.2.1 Soil Contamination exceeding leachability-based SCTLs was found in 13 out of 17 samples collected for analysis. As stated previously, sample 052S0013

contained dieldrin above leachability-based SCTLs at 526 µg/kg at 2 feet bls. After further excavating took place, a composite sample, 052S0017, collected from the walls surrounding the excavation, indicated that soil cleanup levels had been met. Three remaining samples of concern contained levels of contamination exceeding SCTLs: 052S0005 (4,4'-DDD at 12,300 µg/kg, 4,4'-DDT at 93,000 µg/kg, and dieldrin at 13,900 µg/kg), 052S0007 (4,4'-DDT at 15,400 µg/kg), and 052S0010 (dieldrin at 56.1 µg/kg). However, those samples were taken at a depth approximately equal to the water table; therefore, excavating could not continue within the proposed statement of work. A split sample, 052I0001, exceeded the leachability-based SCTL for dieldrin with a concentration of 26.4 µg/kg, although the counterpart sample 052S0001 did not. In addition, the dieldrin leachability-based SCTL was slightly exceeded in samples 052S0003 (22.1 µg/kg), 052S0004 (10.6 µg/kg), 052S0011 (18.4 µg/kg), 052S0014 (20.9 µg/kg), and 052S0017 (8.09 µg/kg).

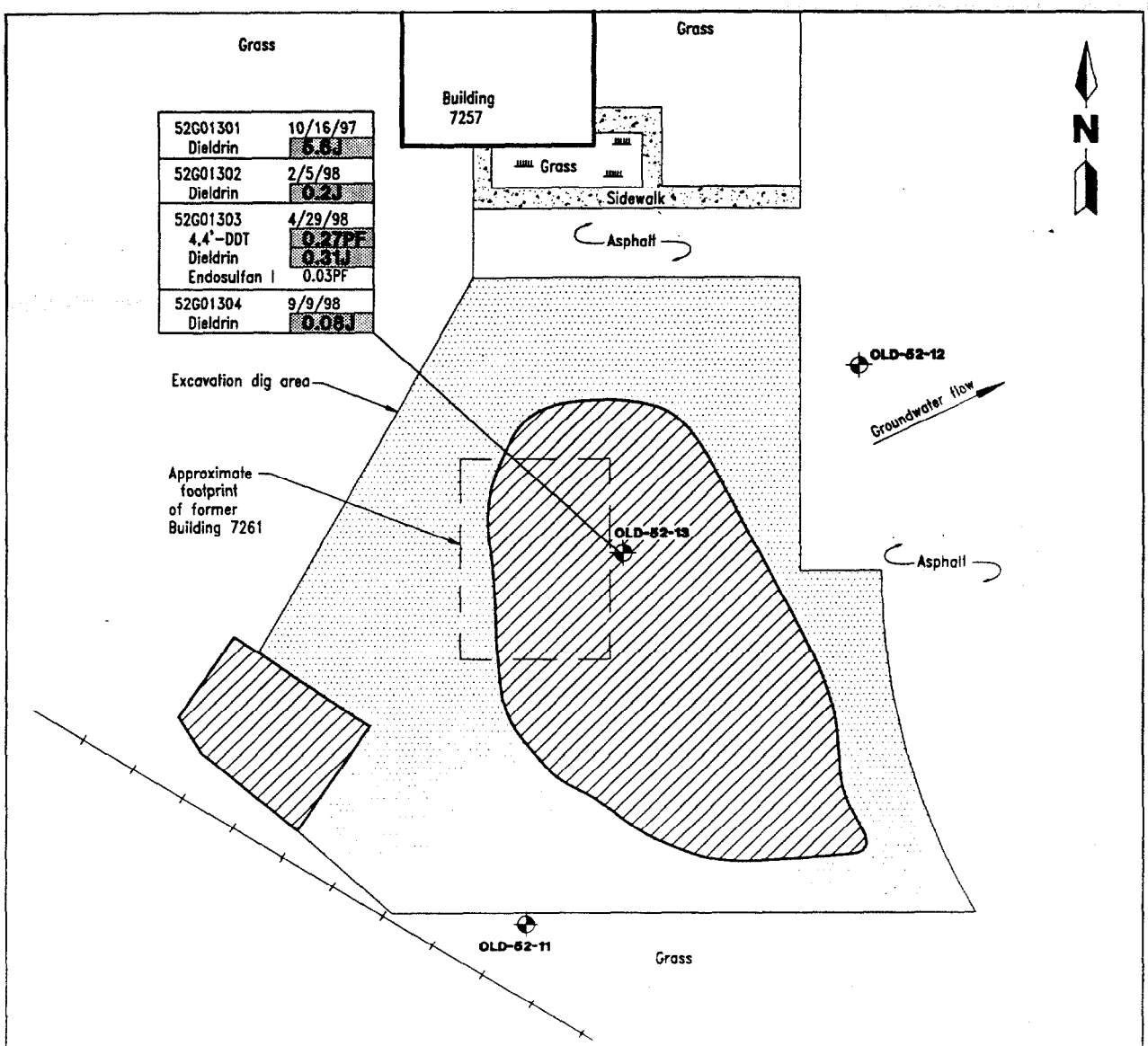
4.2.2 Groundwater A summary of the analytical results from each episode of groundwater monitoring is described below. A summary of the positive detections in groundwater is presented in Figure 4-2 and in Table B-3, Appendix B. The complete analytical results are provided in Appendix C.

October 1997. Dieldrin was detected in well OLD-52-13 (sample 52G01301) at a concentration of 5.6 µg/ℓ, exceeding the GCTL of 0.005 µg/ℓ. The sample was collected in the area that contained the greatest pesticide contamination prior to the IRA. Pesticide contamination was not detected in either the downgradient well (OLD-52-12) or the upgradient well (OLD-52-11).

February 1998. The concentration of dieldrin in well OLD-52-13 (sample 52G01302) decreased to 0.20 µg/ℓ. No compounds were detected in the samples collected from wells OLD-52-11 or OLD-52-12.

April 1998. During the April sampling event, the concentration of dieldrin in well OLD-52-13 (sample 52G01303) increased slightly to 0.31 µg/ℓ. One other compound, 4,4'-DDT, was detected at a concentration of 0.27 µg/ℓ, versus a GCTL of 0.1 µg/ℓ. No compounds were detected in the samples collected from wells OLD-52-11 or OLD-52-12.

September 1998. The only compound detected during the September event was dieldrin in well OLD-52-13 (sample 52G01304) at a concentration of 0.08 µg/ℓ. No compounds were detected in the samples collected from wells OLD-52-11 or OLD-52-12.



LEGEND

- OLD-52-11 — Monitoring well location and designation
- GCTL — Groundwater cleanup target level
- PF — Percent difference between orginal and confirmation analyses is greater than 50 percent
- DDT — Dichlorodiphenyltrichloroethane
- Area of excavation – approximately 4 feet deep
- Area of excavation – approximately 2 feet deep
- J — Estimated concentration
- Railroad line

NOTES:
All concentrations are in micrograms per kilogram.
Exceedances of GTCLs in chembox are bolded and shaded.

0 15 30
SCALE: 1 INCH = 30 FEET

FIGURE 4-2
SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER FIRST YEAR OF GROUNDWATER MONITORING

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BASE REALIGNMENT AND CLOSURE ENVIRONMENTAL SITE SCREENING REPORT STUDY AREA 52 NAVAL TRAINING CENTER ORLANDO, FLORIDA

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS.

5.1.1 Soil In evaluating risk-based exposure from soil to future area residents, only the top 2 feet (surface soil) is used in the calculation. By removing at least the top 2 feet of pesticide-contaminated soil, the risk of dermal exposure from soil has been eliminated for future residents of the area. This has been accomplished at Study Area 52.

5.1.2 Groundwater The results of four quarterly sampling episodes indicate that the only contaminated groundwater at the site is isolated to the area where the highest soil contamination was found. The only compounds detected during the quarterly monitoring in wells OLD-53-11, OLD-52-12, and OLD-52-13 were in samples collected from monitoring well OLD-52-13. Dieldrin was detected at a concentration higher than its GCTL during all four sampling events. The only other compound detected was 4,4'-DDT during the May 1998 sampling event, at a concentration slightly higher than the State GCTL. The contaminant concentrations have shown a downward trend since groundwater monitoring began, suggesting that the goals of the IRA soil removal have been achieved.

5.2 RECOMMENDATIONS. HLA recommends that no further soil investigations be conducted at Study Area 52 since all appropriate remedial actions for the soil have been implemented.

Since the IRA required the removal of the upper 2 feet of pesticide-contaminated soil (up to 4 feet were removed in some areas), the risk of dermal exposure from soil was eliminated for future residents of the area. HLA has also concluded that pesticide-contaminated soils no longer threaten the shallow aquifer, but recommends that the groundwater monitoring program continue until contaminant concentrations decrease below guidance criteria for two successive quarters.

HLA concludes from the site screening investigations and IRA that Study Area 52 is suitable for transfer, under the condition that a groundwater restriction in the surficial aquifer be imposed in an area within a radius of 50 feet from well OLD-52-13. HLA recommends that Study Area 52 be reclassified 4/Dark Green until the groundwater monitoring program demonstrates that contaminants are no longer present at concentrations exceeding GCTLs. This site is currently scheduled for reuse by the Greater Orlando Aviation Authority in an industrial scenario.

The undersigned members of the OPT concur with the findings and recommendations of the preceding investigation.

STUDY AREA 52

Nancy Rodriguez — 4/22/99

U.S. Environmental Protection Agency, Region IV — Date

Daryl P. Hall — 4/22/99

Florida Department of Environmental Protection — Date

Wayne L. Jones — 4-22-99

U.S. Department of the Navy — Date

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ABB Environmental Services, Inc. 1995. *Site Screening Plan, Former Air Force Sites, Addendum 2, Naval Training Center, Orlando, Florida*. Prepared for Southern Division, Naval Facilities Engineering Command (SOUTHNAVFAC-ENGCOM), North Charleston, South Carolina (December).

APPENDIX A

GEOPHYSICAL SURVEY

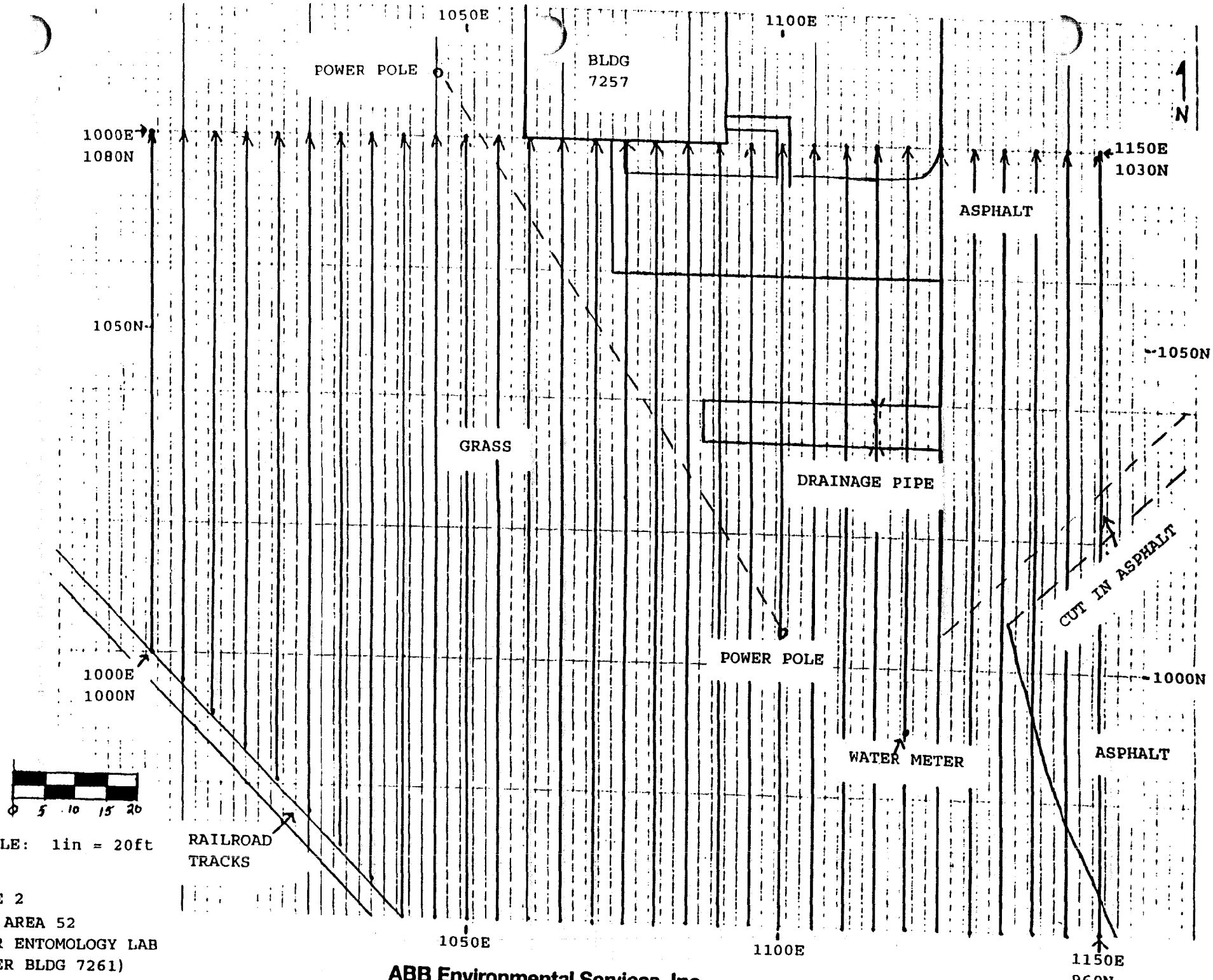

FIGURE 2
STUDY AREA 52
FORMER ENTOMOLOGY LAB
(FORMER BLDG 7261)
MCCOY ANNEX, NTC, ORLANDO

ABB Environmental Services, Inc.

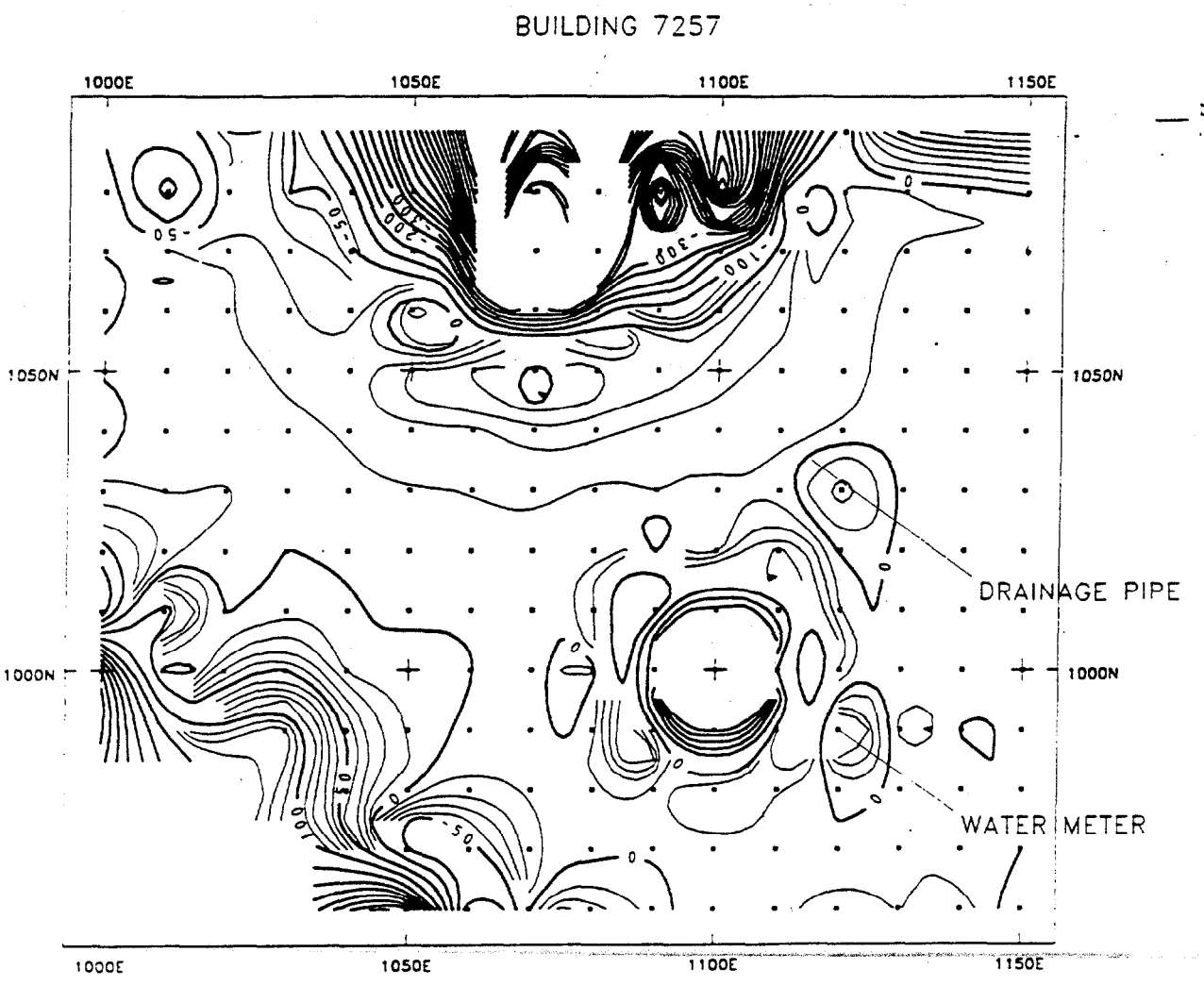

FIGURE 3

Scale 1:360

25 0 25

(feet)

SOUTHERN DIVISION
VERTICAL GRADIENT CONTOURS STUDY AREA 52
ABB ENVIRONMENTAL SERVICES, INC.

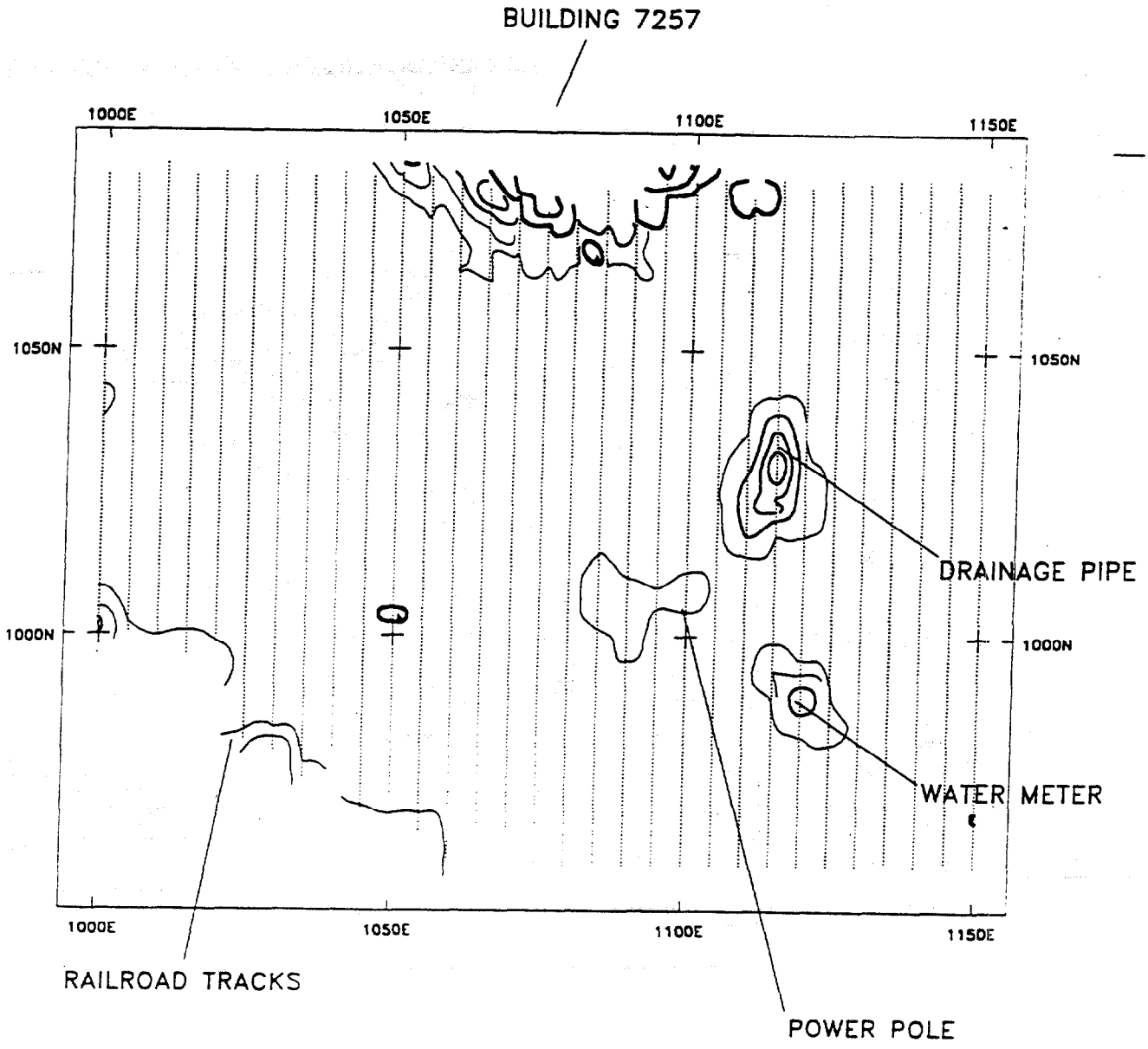

FIGURE 4

Scale 1:360

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(feet)

SOUTHERN DIVISION
TIME DOMAIN METAL DETECTOR CONTOURS STUDY AREA 52
ABB ENVIRONMENTAL SERVICES, INC.

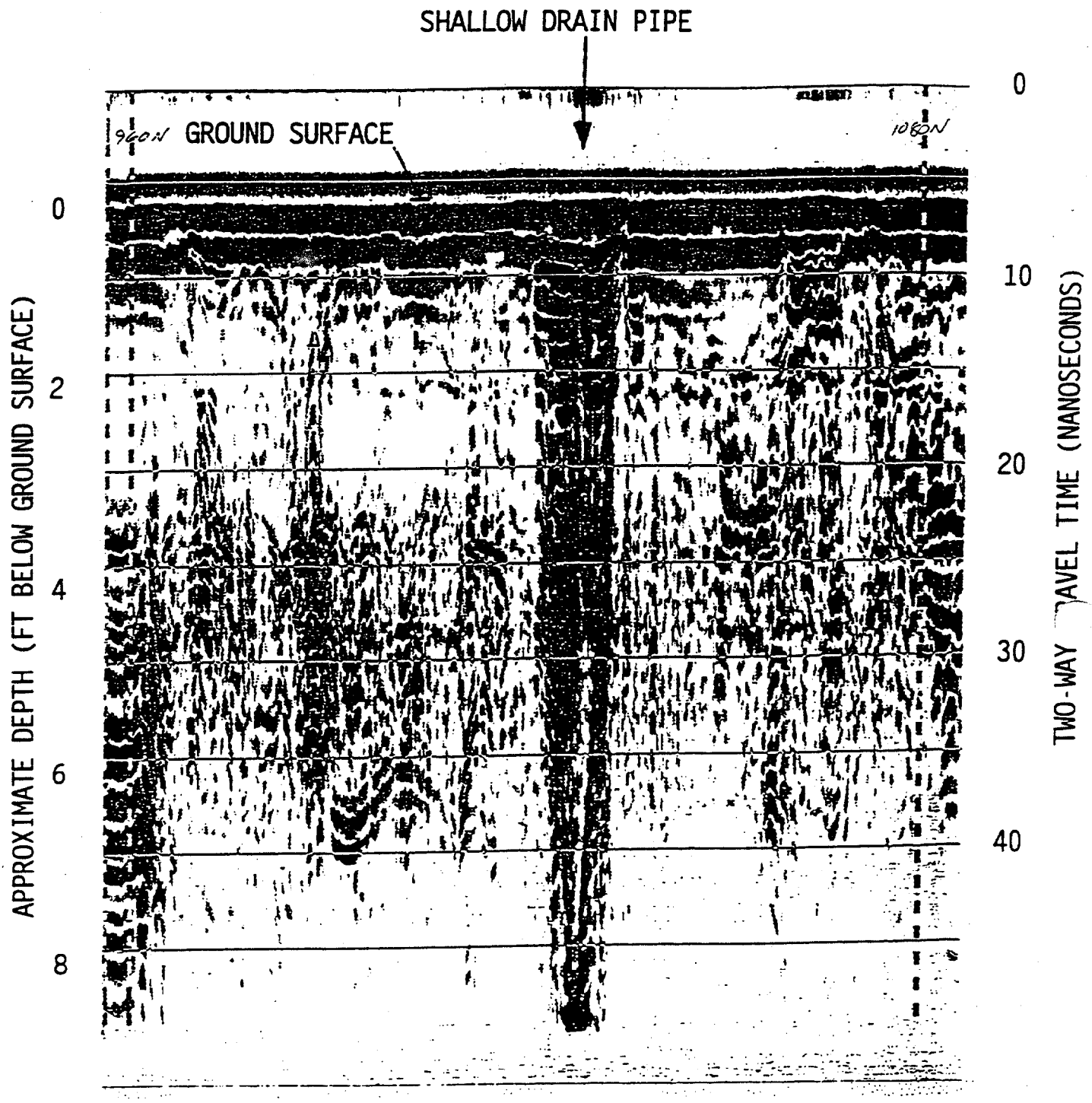

FIGURE 5

SOUTHERN DIVISION
GROUND PENETRATING RADAR TRAVERSE STUDY AREA 52
LINE 1115 EAST 960 NORTH TO 1080 NORTH
ABB ENVIRONMENTAL SERVICES, INC.

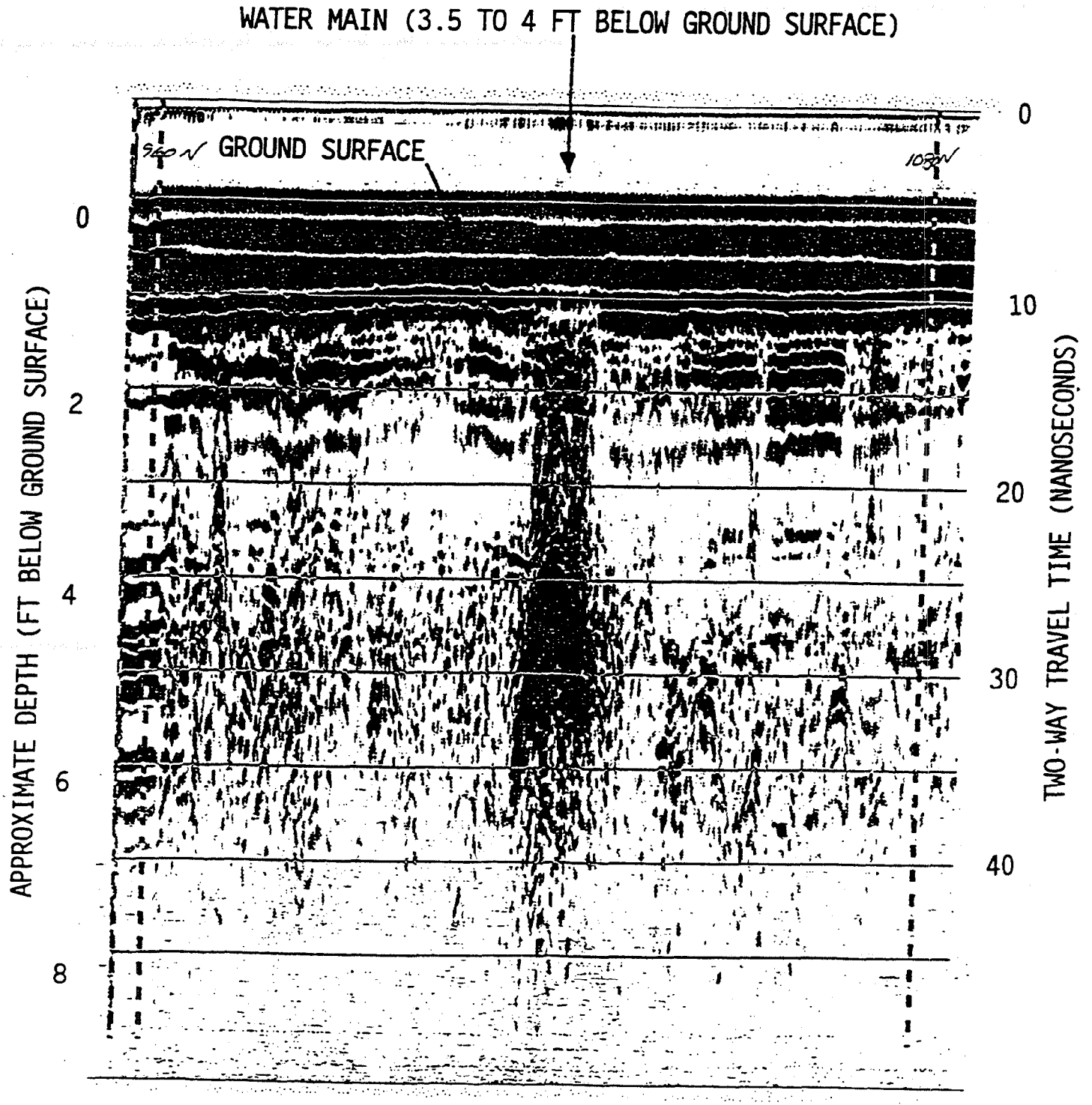

FIGURE 6

SOUTHERN DIVISION
GROUND PENETRATING RADAR TRAVERSE STUDY AREA 52
LINE 1150 EAST 960 NORTH TO 1080 NORTH
ABB ENVIRONMENTAL SERVICES, INC.

APPENDIX B

SUMMARY OF POSITIVE DETECTIONS IN SOIL AND GROUNDWATER

Appendix B
Table B-1. Summary of Positive Detections in Surface Soil Analytical Results
Initial Site Screening Investigation
Study Area 52

Naval Training Center, Orlando
Orlando, FL

Identifier	Background	SCTL	RBC for Residential Soil		RBC for Industrial Soil		52S00101		52S00101D		52S00201		52S00301		52S00301D		52S00401	
Sampling Date							19-Apr-96		19-Apr-96		22-Apr-96		22-Apr-96		22-Apr-96		22-Apr-96	
Feet bls							0-1		0-1		0-1		0-1		0-1		0-1	
Semivolatile Organics, µg/kg																		
Benzo(a)anthracene		1,400	880	c	7,800	c					91	J						
Benzo(a)pyrene		100	88	c	780	c					99	J						
Benzo(b)fluoranthene		1,400	880	c	7,800	c			40	J	130	J						
Benzo(g,h,i)perylene		2,300,000	2,300,000	n	61,000,000	n					250	J						
Benzo(k)fluoranthene		15,000	8,800	c	78,000	c			39	J	92	J						
bis(2-Ethylhexyl)phthalate		75,000	46,000	c	410,000	c	160	J	150	J	73	J	43	J				
Butylbenzylphthalate		220,000	16,000,000	n	410,000,000	n	88	J	72	J								
Chrysene		140,000	88,000	c	780,000	c			42	J	120	J						
Diethylphthalate		640,000	63,000,000	n	1,000,000,000	c	56	J										
Fluoranthene		2,800,000	3,100,000	n	82,000,000	n	51	J	63	J	400							
Indeno(1,2,3-cd)pyrene		1,500	880	c	7,800	c					170	J						
Phenanthrene		1,900,000	2,300,000	n	61,000,000	n					74	J						
Pyrene		2,200,000	2,300,000	n	61,000,000	n			52	J								
Pesticides/PCBs, µg/kg																		
4,4'-DDD		4,500	2,700	c	24,000	c									9.1	NJ		
4,4'-DDE		3,200	1,900	c	17,000	c	16		25				51	D	45	D	2.4	J
4,4'-DDT		3,200	1,900	c	17,000	c	26	J	38	J	11,000	CJ	73	D	62	D		
alpha-Chlordane		3000	490	c	4,400	c	3.5	J	6.5	J	110,000	CD	140	DJ	14	J	6.4	
Aroclor-1260		600	83	c	740	c	84		96									
Dieldrin		70	40	c	360	c	9.9		15		53,000	C	150	DJ	84	DJ	3.5	J
gamma-Chlordane		3000	490	c	4,400	c	3.1	J	6.6	J	110,000	CD	150	DJ	9.1	J	6.4	J
Heptachlor		10	140	c	1,300	c					17,000	C	20					

Appendix B

Table B-1. Summary of Positive Detections in Surface Soil Analytical Results
Initial Site Screening Investigation
Study Area 52

Naval Training Center, Orlando
Orlando, FL

Identifier	Background	SCTL	RBC for Residential Soil		RBC for Industrial Soil		52S00101		52S00101D		52S00201		52S00301		52S00301D		52S00401	
Sampling Date							19-Apr-96		19-Apr-96		22-Apr-96		22-Apr-96		22-Apr-96		22-Apr-96	
Feet bls							0-1		0-1		0-1		0-1		0-1		0-1	
Inorganics, mg/kg																		
Aluminum	4,870	72,000	78,000	n	1,000,000	n	1,460	J	1,420	J	2,780		1,730		1,690		2,180	
Arsenic	1.9	0.8	0.43 / 23	c/n	3.8 / 610	c/n	0.87	B	0.58	B	1.9	B	0.46	B	0.4	B	0.52	B
Barium	21.6	105	5,500	n	140,000	n	6.4	J	6.1	J	11.7	J	5.7	J	6.4	J	4.7	J
Beryllium	0.46	120	0.15	c	1.3	c					0.1	B	0.04	B	0.04	B	0.06	B
Cadmium	ND	75	39	n	1,000	n			0.51	B								
Calcium	33,568	ND	1,000,000		1,000,000		1,260		1,160		7,400	J	6,020	J	38,400	J	12,700	J
Chromium	7.7	290	390	n	10,000	n	3.2		3		7.3		2.8		3.9		3.3	
Cobalt	ND	4,700	4,700	n	120,000	n	0.39	J	0.34	J	0.5	B					0.47	B
Copper	2.6	105	3,100	n	82,000	n	8.3		11.8		17.8		7.3		8.3		1.6	B
Iron	843	23,000	23,000	n	610,000	n	965	J	739	J	1,150		344		361		455	
Lead	21.3	500	400		400		23.5		21.5		200		8.4		8.3		6	
Magnesium	381	ND	460,468		460,468		80.8	B	74.3	B	120	B	75.2	B	229	B	106	B
Manganese	10.8	1,600	1,800	n	47,000	n	7.8		6.5		14.0	J	5.1	J	8.1	J	3.3	J
Mercury	0.05	3.7	23	n	610	n					0.2		0.1	B	0.08	B	0.05	B
Selenium	1.1	390	390	n	10,000	n									0.31	J		
Silver	ND	390	390	n	10,000	n					0.6	J	0.53	J	0.75	J		
Vanadium	4.9	15	550	n	14,000	n	1.8	B	1.4	B	2.8	J	1.6	J	2.7	J	2	J
Zinc	4.6	23,000	23,000	n	610,000	n	31.1	J	30.3	J	777	J	8.6	J				
General Chemistry, mg/kg																		
Total Petroleum Hydrocarbons	ND	ND	ND		ND		6.1		7.6		40.5		13.6		11.1		7.4	

Appendix B
Table B-2 Summary of Detections in Soil Analytical Results
Supplemental Site Screening Investigation
Study Area 52

Naval Training Center, Orlando
Orlando, FL

Identifier	SCTL	RBC for Residential Soil		RBC for Industrial Soil		52S02604	52S03702	52S03703	52S04401	52S04401D	52S05301
Sampling Date						12/16/96	12/17/96	12/17/96	12/18/96	12/18/96	12/16/96
Depth, feet bls						3-4	1-2	2-3	0-1	0-1	0-1
Pesticides, µg/kg											
4,4'-DDD	4,500	2,700	c	24,000	c						
4,4'-DDE	3,200	1,900	c	17,000	c				**350**	**270**	
4,4'-DDT	3,200	1,900	c	17,000	c				940	710	**130,000**
Aldrin	60	38	c	340	c						
Chlordane (Total)	3,000	490	c	4,400	c	**1,900**	**650**	29	**12,000**	**11,000**	**27,000**
Dieldrin	70	40	c	360	c	**1,400**		**21**	**13,000**	**12,000**	**5,600**
Endosulfan I	410,000	470,000	n	12,000,000	n	1500	490		5,900	5,000	14,000
Endrin	21,000	23,000	n	610,000	n				430	370	
Endrin Ketone	ND	ND		ND		28			61	51	
Heptachlor	10	140	c	1,300	c		33				
Heptachlor Epoxide	100	70	c	630	c	**81**	34	21	**440**	**400**	**1,100**

Appendix B
Table B-2. Summary of Detections in Soil Analytical Results
Supplemental Site Screening Investigation
Study Area 52

Naval Training Center, Orlando
Orlando, FL

Identifier	SCTL	RBC for Residential Soil	RBC for Industrial Soil	52S05801	52S06201	52S06301	52S06401	52S06601	052S0001
Sampling Date				12/16/96	12/17/96	12/17/96	12/17/96	12/17/96	9/12/97
Depth, feet bls				0-1	0-1	0-1	0-1	0-1	2-2.5
Pesticides, µg/kg									
4,4'-DDD	4,500	2,700 c	24,000 c			24	23	54	
4,4'-DDE	3,200	1,900 c	17,000 c		57	90	158	**870**	
4,4'-DDT	3,200	1,900 c	17,000 c	21	40	254	900	470	
Aldrin	60	38 c	340 c						
Chlordane (Total)	3,000	490 c	4,400 c				**670**	**660**	5.2 J
Dieldrin	70	40 c	360 c		38	**57**	**77**	**1,200**	
Endosulfan I	410,000	470,000 n	12,000,000 n		24	88	296	157	
Endrin	21,000	23,000 n	610,000 n					11	
Endrin Ketone	ND	ND	ND						
Heptachlor	10	140 c	1,300 c						
Heptachlor Epoxide	100	70 c	630 c		14		20	33	

Appendix B
Table B-2. Summary of Detections in Soil Analytical Results
Supplemental Site Screening Investigation
Study Area 52

Naval Training Center, Orlando
Orlando, FL

Identifier	SCTL	RBC for Residential Soil		RBC for Industrial Soil		052I0001		052S0002		052S0003		052S0004		052S0005		052S0006	
Sampling Date						9/12/97		9/12/97		9/12/97		9/12/97		9/12/97		9/12/97	
Depth, feet bls						2-2.5		2-2.5		2-2.5		3.5-4		3.5-4		2-2.5	
Pesticides, µg/kg																	
4,4'-DDD	4,500	2,700	c	24,000	c							12.8		**12,300**	J		
4,4'-DDE	3,200	1,900	c	17,000	c							3.43					
4,4'-DDT	3,200	1,900	c	17,000	c			1.45				57.6	J	**93,000**		20.4	
Aldrin	60	38	c	340	c			0.611									
Chlordane (Total)	3,000	490	c	4,400	c	56.1		9.47		69.2		88.1		99.9			
Dieldrin	70	40	c	360	c	26.4				22.1		10.6		**13,900**			
Endosulfan I	410,000	470,000	n	12,000,000	n												
Endrin	21,000	23,000	n	610,000	n	1.3	J					4.72					
Endrin Ketone	ND	ND		ND													
Heptachlor	10	140	c	1,300	c							0.851					
Heptachlor Epoxide	100	70	c	630	c					4.53		1.38					

Appendix B
Table B-2. Summary of Detections in Soil Analytical Results
Supplemental Site Screening Investigation
Study Area 52

Naval Training Center, Orlando
Orlando, FL

Identifier	SCTL		RBC for Residential Soil		RBC for Industrial Soil		052S0007		052S0008		052S0009		052S0010		052S0011		052S0012	
Sampling Date							9/12/97		9/12/97		9/12/97		9/12/97		9/12/97		9/12/97	
Depth, feet bls							3.5-4		2-2.5		2-2.5		3.5-4		2-2.5		2-2.5	
Pesticides, µg/kg																		
4,4'-DDD	4,500		2,700	c	24,000	c	1,500		4.65				20.3		7.33	J		
4,4'-DDE	3,200		1,900	c	17,000	c	215	J							54.3			
4,4'-DDT	3,200		1,900	c	17,000	c	**15,400**		3.44				10.3		88.2		14.3	
Aldrin	60		.38	c	340	c												
Chlordane (Total)	3,000		490	c	4,400	c	342		12.1	J			69.6		60.1			
Dieldrin	70		40	c	360	c			3.31		3.09		**56.1**		18.4			
Endosulfan I	410,000		470,000	n	12,000,000	n												
Endrin	21,000		23,000	n	610,000	n												
Endrin Ketone	ND		ND		ND													
Heptachlor	10		140	c	1,300	c												
Heptachlor Epoxide	100		70	c	630	c												

Appendix B
Table B-2. Summary of Detections in Soil Analytical Results
Supplemental Site Screening Investigation
Study Area 52

Naval Training Center, Orlando
Orlando, FL

Identifier	SCTL	RBC for Residential Soil		RBC for Industrial Soil		052S0013		052S0014		052S0015		052S0016		052S0016D		052S0017	
Sampling Date						9/12/97		9/12/97		9/12/97		9/12/97		9/12/97		9/12/97	
Depth, feet bls						2-2.5		2-2.5		2-2.5		2-2.5		2-2.5		2-2.5	
Pesticides, µg/kg																	
4,4'-DDD	4,500	2,700	c	24,000	c											8.03	J
4,4'-DDE	3,200	1,900	c	17,000	c			22.6									
4,4'-DDT	3,200	1,900	c	17,000	c			20.6									
Aldrin	60	38	c	340	c											5.36	J
Chlordane (Total)	3,000	490	c	4,400	c							6.29		15.7			
Dieldrin	70	40	c	360	c	**526**		20.9								8.09	J
Endosulfan I	410,000	470,000	n	12,000,000	n												
Endrin	21,000	23,000	n	610,000	n												
Endrin Ketone	ND	ND		ND													
Heptachlor	10	140	c	1,300	c												
Heptachlor Epoxide	100	70	c	630	c												

Appendix B
Tables B-1 and B-2. Notes for Summary of Positive Detections in Surface Soil Analytical Results
Study Area 52

Naval Training Center, Orlando
Orlando, FL

NOTES:

The background screening value is twice the average of detected concentrations for inorganic analytes.

SCTL = Florida Department of Environmental Protection, Soil Cleanup Target Levels, Chapter 62-785 FAC, April 30, 1998.
Values indicated are for direct exposure scenario. Value for chromium is for chromium (IV).
Value for mercury is for inorganic mercury.

RBC = Risk-Based Concentration Table, USEPA Region III, May 1996, R.L. Smith. RBC for chromium is based on chromium VI. RBC for lead is not available; value is Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites (OSWER directive 9355-4-12). For essential nutrients (calcium, magnesium, sodium, potassium) screening values were derived based on recommended daily allowances.
RBC for benzo(g,h,i)perylene and phenanthrene are not available, value is based on pyrene.

µg/kg = micrograms per kilogram.
mg/kg = milligrams per kilogram.
n = noncarcinogenic effects.
c = carcinogenic effects.
ND = Not determined.

DDE = dichlorodiphenyldichloroethene.
DDT = dichlorodiphenyltrichloroethane.
DDD = dichlorodiphenyldichloroethane.

B = Reported concentration is between the instrument detection limit and Contract Required Detection Limit.
C = Indicates a pesticide identification has been confirmed utilizing GC/MS techniques.
D = Indicates the sample extract was diluted due to the sample matrix and/or concentration levels. All method detection limits or practical quantitation limits for the sample are therefore increased by the dilution factor.
J = Reported concentration is an estimated quantity.
FDEP = Florida Department of Environmental Protection.
OSWER = Office of Solid Waste and Emergency Response.
USEPA = U.S. Environmental Protection Agency.
All inorganics results expressed in milligrams per kilogram (mg/kg) soil dry weight; organics in micrograms per kilogram (µg/kg) soil dry weight.
Bold/shaded values indicate exceedance of regulatory guidance and background.
Blank space indicates analyte/compound was not detected at the reporting limit.

Appendix B

Table B-3. Summary of Positive Detections in Groundwater Analytical Results
Study Area 52

Naval Training Center, Orlando
Orlando, FL

Well ID							OLD-52-01				OLD-52-02				OLD-52-10
Identifier	Background	GCTL		FEDMCL	RBC for Tap Water		52G00101		52H00101		52G00201		52H00201		52G01001
Sampling Date							23-Apr-96		23-Apr-96		23-Apr-96		23-Apr-96		26-Dec-97
Volatile organics, ug/L															
Chloromethane		2.7		ND	1.4	c	0.5	J	NA				NA		NA
Pesticides/PCBs, ug/L															
Dieldrin		0.005		ND	0.0042	c	**0.11**		NA		**2.3**	D	NA		**7.2**
Endosulfan I		42		ND	220	n									
Heptachlor		0.4		0.4	0.0023	c			NA				NA		**0.6**
gamma-Chlordane		2		2	0.052	c			NA				NA		0.9
4,4'-DDE		0.1		0.1	0.2	c			NA				NA		**1.4**
4,4'-DDT		0.1		0.1	0.2	c									
Endrin ketone		ND		ND	ND				NA				NA		0.9
Inorganics, ug/L															
Aluminum	4,067	200	s	ND	37,000	n			3,920	J	**4,750**	J	**8,630**	J	NA
Arsenic	5	50	p/c	50	0.045 /11	c/n							1.4	J	NA
Cadmium	5.6	5	p/c	5	18	n			2.7	J					NA
Calcium	36,830	ND		ND	1,000,000		20,900		21,200		19,200		18,800		NA
Chromium	7.8	100	p	100	180	n			6.7	B	7.1	B	13.7		NA
Copper	5.4	1,000	s/st	ND	1,500	n					3.1	B			NA
Iron	1,227	300	s	ND	11,000	n	79.4	J	251	J	202	J	304	J	NA
Magnesium	4,560	ND		ND	118,807		627	B	675	B	483	B	469	B	NA
Manganese	17	50	s/st	ND	180	n	5.8	B							NA
Mercury	0.12	2	p/st	2	11	n			0.12	J	0.09	J	0.25	J	NA
Selenium	9.7	50	p/st	50	180	n					2.9	B	5.7		NA
Sodium	18,222	160,000	p	ND	396,022		2,140	J	1,970	J	1,140	J	1,040	J	NA
Vanadium	20.6	49	mc/st	ND	260	n	4	B	6.1	B	4.5	B	8.2	B	NA
General Chemistry, mg/L															
Total Suspended Solids	ND	ND		ND	ND				NA		57		NA		NA

Appendix B
Table B-3. Summary of Positive Detections in Groundwater Analytical Results
Study Area 52

Naval Training Center, Orlando
Orlando, FL

Well ID							OLD-52-13		OLD-52-13		OLD-52-13		OLD-52-13	
Identifier	Background	GCTL		FEDMCL	RBC for Tap Water		52G01301		52G01302		52G01303		52G01304	
Sampling Date							16-Oct-97		5-Feb-98		29-Apr-98		9-Sep-98	
Volatile organics, ug/L														
Chloromethane		2.7		ND	1.4	c	NA		NA		NA		NA	
Pesticides/PCBs, ug/L														
Dieldrin		0.005		ND	0.0042	c	5.6	J	0.2	J	0.31	J	0.08	J
Endosulfan I		42		ND	220	n					0.03	PF		
Heptachlor		0.4		0.4	0.0023	c								
gamma-Chlordane		2		2	0.052	c								
4,4'-DDE		0.1		0.1	0.2	c								
4,4'-DDT		0.1		0.1	0.2	c					0.27	PF		
Endrin ketone		ND		ND	ND									
Inorganics, ug/L														
Aluminum	4,067	200	s	ND	37,000	n	NA		NA		NA		NA	
Arsenic	5	50	p/c	50	0.045 /11	c/n	NA		NA		NA		NA	
Cadmium	5.6	5	p/c	5	18	n	NA		NA		NA		NA	
Calcium	36,830	ND		ND	1,000,000		NA		NA		NA		NA	
Chromium	7.8	100	p	100	180	n	NA		NA		NA		NA	
Copper	5.4	1,000	s/st	ND	1,500	n	NA		NA		NA		NA	
Iron	1,227	300	s	ND	11,000	n	NA		NA		NA		NA	
Magnesium	4,560	ND		ND	118,807		NA		NA		NA		NA	
Manganese	17	50	s/st	ND	180	n	NA		NA		NA		NA	
Mercury	0.12	2	p/st	2	11	n	NA		NA		NA		NA	
Selenium	9.7	50	p/st	50	180	n	NA		NA		NA		NA	
Sodium	18,222	160,000	p	ND	396,022		NA		NA		NA		NA	
Vanadium	20.6	49	mc/st	ND	260	n	NA		NA		NA		NA	
General Chemistry, mg/L														
Total Suspended Solids	ND	ND		ND	ND		NA		NA		NA		NA	

Apendix B
Table B-3. Notes for Summary of Positive Detections in
Groundwater Analytical Results
Study Area 52

Naval Training Center, Orlando
Orlando, FL

NOTES:

Groundwater background screening value is twice the average of detected concentrations for inorganic analytes.
GCTL = Florida Department of Environmental Protection, Groundwater Cleanup Target Levels, Chapter 62-785 FAC, April 30, 1998.
FEDMCL= Federal Maximum Contaminant Levels, Primary Drinking Water Regulations and Health Advisories, February 1996.
RBC = Risk-Based Concentration Table, USEPA Region III, May 1996, R L. Smith. RBC for chromium is based on chromium VI. RBC for lead is not available, value is treatment technology action limit for lead in drinking water distribution system identified in Drinking Water Standards and Health Advisories (USEPA, 1995). For essential nutrients (calcium, magnesium, potassium, and sodium) screening values were derived based on recommended daily allowances.

OLD-17-T24 is a temporary well installed during initial site screening. Sample collected from this well on 6/2/95
renamed to 17G024T1 to resolve conflict with sample taken at OLD-17-24 on 6/18/98

s = secondary groundwater standard
st = systemic toxicant
mc = based on minimum criteria
p = primary standard
o = organoleptic
n = noncarcinogenic effects
c = carcinogen (GCTLs) or carcinogenic effects (RBCs)
ND = Not determined.
NA = Not analyzed.
USEPA = U S Environmental Protection Agency
B = Reported concentration is between the instrument detection limit and the contract required detection limit.
J = Reported concentration is an estimated quantity
PF = The percent difference between the original and confirmation analyses is greater than 50%.
D = Reported concentrations if from a dilution/reanalysis
µg/L = micrograms per liter
mg/L = miligrams per liter
Bold/shaded numbers indicate exceedance of groundwater guidance and background
Blank space indicates analyte/compound was not detected at the reporting limit

APPENDIX C

SUMMARY OF ANALYTICAL RESULTS IN SOIL AND GROUNDWATER

Appendix C
Table C-1. Summary of Soil Analytical Results
Initial Site Screening Investigation
Study Area 52

Naval Training Center, Orlando
Orlando, FL

Sample ID	52S00101		52S00101D		52S00201		52S00201		52S00301		52S00301		52S00301D		52S00401	
Lab ID	MA785003		MA785004		MA790002		MA790002DL		MA790003		MA790003DL		MA790005		MA790005DL		MA790004	
Sampling Date	19-Apr-96		19-Apr-96		22-Apr-96		22-Apr-96		22-Apr-96		22-Apr-96		22-Apr-96		22-Apr-96		22-Apr-96	
Semivolatile organics, µg/kg																		
1,2,4-Trichlorobenzene	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
1,2-Dichlorobenzene	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
1,3-Dichlorobenzene	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
1,4-Dichlorobenzene	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
2,2'-oxybis(1-Chloropropane)	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
2,4,5-Trichlorophenol	960	U	920	U	900	U	NA		900	U	NA		900	U	NA		890	U
2,4,6-Trichlorophenol	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
2,4-Dichlorophenol	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
2,4-Dimethylphenol	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
2,4-Dinitrophenol	960	U	920	U	900	U	NA		900	U	NA		900	U	NA		890	U
2,4-Dinitrotoluene	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
2,6-Dinitrotoluene	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
2-Chloronaphthalene	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
2-Chlorophenol	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
2-Methylnaphthalene	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
2-Methylphenol	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
2-Nitroaniline	960	U	920	U	900	U	NA		900	U	NA		900	U	NA		890	U
2-Nitrophenol	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
3,3'-Dichlorobenzidine	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
3-Nitroaniline	960	U	920	U	900	U	NA		900	U	NA		900	U	NA		890	U
4,6-Dinitro-2-methylphenol	960	U	920	U	900	U	NA		900	U	NA		900	U	NA		890	U
4-Bromophenyl-phenylether	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
4-Chloro-3-methylphenol	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
4-Chloroaniline	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
4-Chlorophenyl-phenylether	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
4-Methylphenol	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
4-Nitroaniline	960	U	920	U	900	U	NA		900	U	NA		900	U	NA		890	U
4-Nitrophenol	960	U	920	U	900	U	NA		900	U	NA		900	U	NA		890	U
Acenaphthene	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
Acenaphthylene	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
Anthracene	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
Benzo(a)anthracene	380	U	370	U	91	J	NA		360	U	NA		360	U	NA		350	U
Benzo(a)pyrene	380	U	370	U	99	J	NA		360	U	NA		360	U	NA		350	U

Appendix C
Table C-1. Summary of Soil Analytical Results
Initial Site Screening Investigation
Study Area 52

Naval Training Center, Orlando
Orlando, FL

Sample ID	52S00101		52S00101D		52S00201		52S00201		52S00301		52S00301		52S00301D		52S00301D		52S00401	
Lab ID	MA785003		MA785004		MA790002		MA790002DL		MA790003		MA790003DL		MA790005		MA790005DL		MA790004	
Sampling Date	19-Apr-96		19-Apr-96		22-Apr-96		22-Apr-96		22-Apr-96		22-Apr-96		22-Apr-96		22-Apr-96		22-Apr-96	
Benzo(b)fluoranthene	380	U	40	J	130	J	NA		360	U	NA		360	U	NA		350	U
Benzo(g,h,i)perylene	380	U	370	U	250	J	NA		360	U	NA		360	U	NA		350	U
Benzo(k)fluoranthene	380	U	39	J	92	J	NA		360	U	NA		360	U	NA		350	U
bis(2-Chloroethoxy)methane	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
bis(2-Chloroethyl)ether	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
bis(2-Ethylhexyl)phthalate	160	J	150	J	73	J	NA		43	J	NA		360	U	NA		350	U
Butylbenzylphthalate	88	J	72	J	360	U	NA		360	U	NA		360	U	NA		350	U
Carbazole	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
Chrysene	380	U	42	J	120	J	NA		360	U	NA		360	U	NA		350	U
Di-n-butylphthalate	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
Di-n-octylphthalate	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
Dibenz(a,h)anthracene	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
Dibenzofuran	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
Diethylphthalate	56	J	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
Dimethylphthalate	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
Fluoranthene	51	J	63	J	400		NA		360	U	NA		360	U	NA		350	U
Fluorene	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
Hexachlorobenzene	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
Hexachlorobutadiene	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
Hexachlorocyclopentadiene	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
Hexachloroethane	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
Indeno(1,2,3-cd)pyrene	380	U	370	U	170	J	NA		360	U	NA		360	U	NA		350	U
Isophorone	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
N-Nitroso-di-n-propylamine	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
N-Nitrosodiphenylamine (1)	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
Naphthalene	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
Nitrobenzene	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
Pentachlorophenol	960	U	920	U	900	U	NA		900	U	NA		900	U	NA		890	U
Phenanthrene	380	U	370	U	74	J	NA		360	U	NA		360	U	NA		350	U
Phenol	380	U	370	U	360	U	NA		360	U	NA		360	U	NA		350	U
Pyrene	380	U	52	J	360	U	NA		360	U	NA		360	U	NA		350	U

Appendix C

Table C-1. Summary of Soil Analytical Results

Initial Site Screening Investigation

Study Area 52

Naval Training Center, Orlando

Orlando, FL

Sample ID	52S00101		52S00101D		52S00201		52S00201		52S00301		52S00301		52S00301D		52S00301D		52S00401	
Lab ID	MA785003		MA785004		MA790002		MA790002DL		MA790003		MA790003DL		MA790005		MA790005DL		MA790004	
Sampling Date	19-Apr-96		19-Apr-96		22-Apr-96		22-Apr-96		22-Apr-96		22-Apr-96		22-Apr-96		22-Apr-96		22-Apr-96	
Pesticides/PCBs, µg/kg																		
4,4'-DDD	3.8	U	3.7	U	3500	U	35000	UR	3.5	U	35	UR	9.1	NJ	35	UR	3.5	U
4,4'-DDE	16		25		3500	U	35000	UR	58	ER	51	D	56	ER	45	D	2.4	J
4,4'-DDT	26	J	38	J	11000	CJ	35000	UR	76	ER	73	D	67	ER	62	D	3.5	U
Aldrin	2	U	1.9	U	1800	U	18000	UR	1.8	U	18	UR	1.8	U	18	UR	1.8	U
alpha-BHC	2	UJ	1.9	UJ	1800	UJ	18000	UR	1.8	UJ	18	UR	1.8	UJ	18	UR	1.8	U
alpha-Chlordane	3.5	J	6.5	J	100000	ER	110000	CD	130	ER	140	DJ	14	J	14	DR	6.4	
Aroclor-1016	38	U	37	U	35000	U	350000	UR	35	U	350	UR	35	U	350	UR	35	U
Aroclor-1221	77	U	74	U	72000	U	720000	UR	72	U	720	UR	72	U	720	UR	71	U
Aroclor-1232	38	U	37	U	35000	U	350000	UR	35	U	350	UR	35	U	350	UR	35	U
Aroclor-1242	38	U	37	U	35000	U	350000	UR	35	U	350	UR	35	U	350	UR	35	U
Aroclor-1248	38	U	37	U	35000	U	350000	UR	35	U	350	UR	35	U	350	UR	35	U
Aroclor-1254	38	U	37	U	35000	U	350000	UR	35	U	350	UR	35	U	350	UR	35	U
Aroclor-1260	84		96		35000	U	350000	UR	35	U	350	UR	35	U	350	UR	35	U
beta-BHC	2	U	1.9	U	1800	U	18000	UR	1.8	U	18	UR	1.8	U	18	UR	1.8	U
delta-BHC	2	U	1.9	U	1800	U	18000	UR	1.8	U	18	UR	1.8	U	18	UR	1.8	U
Dieldrin	9.9		15		53000	C	46000	DR	140	ER	150	DJ	89	ER	84	DJ	3.5	J
Endosulfan I	2	U	1.9	U	1800	U	18000	UR	1.8	U	18	UR	1.8	U	18	UR	1.8	U
Endosulfan II	3.8	U	3.7	U	3500	U	35000	UR	3.5	U	35	UR	3.5	U	35	UR	3.5	U
Endosulfan sulfate	3.8	U	3.7	U	3500	U	35000	UR	3.5	U	35	UR	3.5	U	35	UR	3.5	U
Endrin	3.8	U	3.7	U	3500	U	35000	UR	3.5	U	35	UR	3.5	U	35	UR	3.5	U
Endrin aldehyde	3.8	U	3.7	U	3500	U	35000	UR	3.5	U	35	UR	3.5	U	35	UR	3.5	U
Endrin ketone	3.8	U	3.7	U	3500	U	35000	UR	3.5	U	35	UR	3.5	U	35	UR	3.5	U
gamma-BHC (Lindane)	2	U	1.9	U	1800	U	18000	UR	1.8	U	18	UR	1.8	U	18	UR	1.8	U
gamma-Chlordane	3.1	J	6.6	J	120000	ER	110000	CD	150	ER	150	DJ	9.1	J	9.3	DR	6.4	J
Heptachlor	2	U	1.9	U	17000	C	18000	DR	20		20	DR	1.8	U	18	UR	1.8	U
Heptachlor epoxide	2	U	1.9	U	1800	U	18000	UR	1.8	U	18	UR	1.8	U	18	UR	1.8	U
Methoxychlor	20	U	19	U	18000	UJ	180000	UR	18	UJ	180	UR	18	UJ	180	UR	18	U
Toxaphene	200	U	190	U	180000	U	1800000	UR	180	U	1800	UR	180	U	1800	UR	180	U

Appendix C

Table C-1. Summary of Soil Analytical Results

Initial Site Screening Investigation

Study Area 52

Naval Training Center, Orlando

Orlando, FL

Sample ID	52S00101		52S00101D		52S00201		52S00201		52S00301		52S00301		52S00301D		52S00301D		52S00401	
Lab ID	MA785003		MA785004		MA790002		MA790002DL		MA790003		MA790003DL		MA790005		MA790005DL		MA790004	
Sampling Date	19-Apr-96		19-Apr-96		22-Apr-96		22-Apr-96		22-Apr-96		22-Apr-96		22-Apr-96		22-Apr-96		22-Apr-96	
Inorganics, mg/kg																		
Aluminum	1460	J	1420	J	2780		NA		1730		NA		1690		NA		2180	
Antimony	2 5	U	2 4	U	2.3	U	NA		2.3	U	NA		2.3	U	NA		2.3	U
Arsenic	0 87	B	0 58	B	1.9	B	NA		0.46	B	NA		0.4	B	NA		0.52	B
Barium	6 4	J	6 1	J	11.7	J	NA		5.7	J	NA		6.4	J	NA		4.7	J
Beryllium	0 03	U	0 03	U	0.05	B	NA		0.04	B	NA		0.04	B	NA		0.06	B
Cadmium	0 42	U	0 51	B	1.3	U	NA		0.39	U	NA		0.39	U	NA		0.38	U
Calcium	1260		1160		7400	J	NA		6020	J	NA		38400	J	NA		12700	J
Chromium	3 2		3		7 3		NA		2.8		NA		3.9		NA		3.3	
Cobalt	0 39	J	0 34	J	0 53	B	NA		0.32	U	NA		0.32	U	NA		0.47	B
Copper	8 3		11 8		17 8		NA		7.3		NA		8.3		NA		1.6	B
Iron	965	J	739	J	1150		NA		344		NA		361		NA		455	
Lead	23 5		21 5		200		NA		8.4		NA		8.3		NA		6	
Magnesium	80 8	B	74 3	B	120	B	NA		75.2	B	NA		229	B	NA		106	B
Manganese	7 8		6 5		14	J	NA		5.1	J	NA		8.1	J	NA		3.3	J
Mercury	0.06	U	0.05	U	0.19		NA		0.1	B	NA		0.08	B	NA		0.05	B
Nickel	1.8	U	1.7	U	1.7	U	NA		1.6	U	NA		1.6	U	NA		1.6	U
Potassium	177	U	170	U	165	U	NA		164	U	NA		164	U	NA		163	U
Selenium	0.3	U	0.29	U	0.28	U	NA		0.28	U	NA		0.31	J	NA		0.28	U
Silver	0.51	UR	0.49	UR	0.58	J	NA		0.53	J	NA		0.75	J	NA		0.47	UJ
Sodium	45.4	U	80.6	U	49.5	U	NA		36.4	U	NA		38.4	U	NA		27.3	U
Thallium	0.2	UJ	0.19	UJ	0.18	U	NA		0.18	U	NA		0.18	U	NA		0.18	U
Vanadium	1.8	B	1.4	B	2.8	J	NA		1.6	J	NA		2.7	J	NA		2	J
Zinc	31.1	J	30.3	J	777	J	NA		8.6	J	NA		9.7	U	NA		3.7	U
General Chemistry, mg/kg																		
Total Petroleum Hydrocarbons	6.1		7.6		40.5		NA		13.6		NA		11.1		NA		7.4	

Appendix C
Table C-2. Summary of Soil Analytical Results
Confirmation Samples - Pesticides
Study Area 52

Naval Training Center, Orlando
Orlando, FL

Sample ID	52S02604		52S05801		52S06201		52S05301		52S06301		52S06401		52S06601		52S03702		52S03703		52S04401		52S04401D	
Lab ID	J9601953-01		J9601953-03		J9601953-04		J9601953-02		J9601953-05		J9601953-06		J9601953-07		J9601953-09		J9601953-10		J9601953-11		J9601953-12	
Sampling Date	16-Dec-96		16-Dec-96		16-Dec-96		16-Dec-96		17-Dec-96		17-Dec-96		17-Dec-96		17-Dec-96		17-Dec-96		17-Dec-96		17-Dec-96	
Pesticides, µg/kg																						
4,4'-DDD	10	U	10	U	10	U	1200	U	10	U	23		54		10	U	10	U	10	U	10	U
4,4'-DDE	10	U	10	U	57		1000	U	90		158		870		10	U	10	U	350		270	
4,4'-DDT	20	U	21		40		130000		254		900		470		10	U	10	U	940		710	
Aldrin	20	U	10	U	10	U	1000	U	10	U	10	U	10	U	10	U	10	U	80	U	70	U
alpha-Chlordane	1900		10	U	40	U	27000		180	U	670		660		650		29		12000		11000	
gamma-Chlordane	1500	U	10	U	20	U	1400	U	130	U	300	U	160	U	420	U	30	U	5600	U	4700	U
Chlordane (Total)	NQ		NQ		NQ		NQ		NQ		NQ		NQ		NQ		NQ		NQ		NQ	
alpha-BHC	10	U	10	U	10	U	1000	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
beta-BHC	10	U	10	U	10	U	1000	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
delta-BHC	10	U	10	U	10	U	1000	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Dieldrin	1400		10	U	38		5600		57		77		1200		10	U	21		13000		12000	
Endosulfan I	1500		10	U	24		14000		88		296		157		490		10	U	5900		5000	
Endosulfan II	20	U	10	U	10	U	1000	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Endosulfan sulfate	10	U	10	U	10	U	1000	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Endrin	30	U	10	U	10	U	1000	U	10	U	90		11		10	U	10	U	430		370	
Endrin aldehyde	10	U	10	U	10	U	1000	U	10	U	10	U	10	U	10	U	10	U	60	U	40	U
Endrin ketone	28		10	U	10	U	1000	U	10	U	10	U	10	U	10	U	10	U	61		51	
gamma-BHC (Lindane)	10	U	10	U	10	U	1000	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Heptachlor	10	U	10	U	10	U	1000	U	10	U	10	U	10	U	33		10	U	10	U	20	U
Heptachlor epoxide	81		10	U	14		1100		10	U	20		33		34		21		440		400	
Methoxychlor	20	U	20	U	20	U	2000	U	20	U	20	U	20	U	20	U	20	U	40	U	50	U
Toxaphene	6000	U	300	U	350	U	15000	U	390	U	3000	U	2100	U	6000	U	300	U	30000	U	30000	U

Appendix C
Table C-2. Summary of Soil Analytical Results
Confirmation Samples - Pesticides
Study Area 52

Naval Training Center, Orlando
Orlando, FL

Sample ID	052S0001		052I0001		052S0002		052S0003		052S0004		052S0005		052S0006		052S0007		052S0008		052S0009		052S0010	
Lab ID	9709316-01		9709316-02		9709316-03		9709316-04		9709316-05		9709316-06		9709316-07		9709316-08		9709316-09		9709316-10		9709316-11	
Sampling Date	9/12/97		9/12/97		9/12/97		9/12/97		9/12/97		9/12/97		9/12/97		9/12/97		9/12/97		9/12/97		9/12/97	
Pesticides, µg/kg																						
4,4'-DDD	1.3	U	1.3	U	1.3	U	6.6	U	12.8		12300	J	6.6	U	1500		4.65		2.6	U	20.3	
4,4'-DDE	1.3	U	1.3	U	1.3	U	6.6	U	3.43		133	U	6.6	U	215	J	2.6	U	2.6	U	6.6	U
4,4'-DDT	1.3	U	1.3	U	1.45		6.6	U	57.6	J	93000		20.4		15400		3.44		2.6	U	10.3	
Aldrin	0.7	U	0.7	U	0.6	J	3.3	U	0.7	U	66	U	3.3	U	165	U	1.3	U	1.3	U	3.3	U
alpha-Chlordane	NQ		NQ		NQ		NQ		NQ		NQ		NQ		NQ		NQ		NQ		NQ	
gamma-Chlordane	NQ		NQ		NQ		NQ		NQ		NQ		NQ		NQ		NQ		NQ		NQ	
Chlordane (Total)	5.2	J	56.1		9.47		69.2		88.1		99.9		41.5	U	342		12.1	J	16.5	U	69.6	
alpha-BHC	0.7	U	0.7	U	0.7	U	3.3	U	0.7	U	66	U	3.3	U	165	U	1.3	U	1.3	U	3.3	U
beta-BHC	0.7	U	0.7	U	0.7	U	3.3	U	0.7	U	66	U	3.3	U	165	U	1.3	U	1.3	U	3.3	U
delta-BHC	0.7	U	0.7	U	0.7	U	3.3	U	0.7	U	66	U	3.3	U	165	U	1.3	U	1.3	U	3.3	U
Dieldrin	1.3	U	26.4		1.3	U	22.1		10.6		13900		6.6	U	6600	U	3.31		3.09	J	56.1	
Endosulfan I	0.7	U	0.7	U	0.7	U	3.3	U	0.7	U	66	U	3.3	U	165	U	1.3	U	1.3	U	3.3	U
Endosulfan II	1.3	U	1.3	U	1.3	U	6.6	U	1.3	U	133	U	6.6	U	330	U	2.6	U	2.6	U	6.6	U
Endosulfan sulfate	1.3	U	1.3	U	1.3	U	6.6	U	1.3	U	133	U	6.6	U	330	U	2.6	U	2.6	U	6.6	U
Endrin	1.3	U	1.3	J	1.3	U	6.6	U	4.72		133	U	6.6	U	330	U	2.6	U	2.6	U	6.6	U
Endrin aldehyde	1.3	U	1.3	U	1.3	U	6.6	U	1.3	U	133	U	6.6	U	330	U	2.6	U	2.6	U	6.6	U
Endrin ketone	NQ		NQ		NQ		NQ		NQ		NQ		NQ		NQ		NQ		NQ		NQ	
gamma-BHC (Lindane)	0.7	U	0.7	U	0.7	U	3.3	U	0.7	U	66	U	3.3	U	165	U	1.3	U	1.3	U	3.3	U
Heptachlor	0.7	U	0.7	U	0.7	U	3.3	U	0.851		66	U	3.3	U	165	U	1.3	U	1.3	U	3.3	U
Heptachlor epoxide	0.7	U	0.7	U	0.7	U	4.53		1.38		66	U	3.3	U	165	U	1.3	U	1.3	U	3.3	U
Methoxychlor	6.7	U	6.7	U	6.7	U	33	U	6.7	U	664	U	33	U	1650	U	13.3	U	13	U	33	U
Toxaphene	33	U	33	U	33	U	166	U	33	U	3320	U	166	U	8250	U	66	U	66	U	166	U

Appendix C
Table C-2. Summary of Soil Analytical Results
Confirmation Samples - Pesticides
Study Area 52

Naval Training Center, Orlando
Orlando, FL

Sample ID	052S0011		052S0012		052S0013		052S0014		052S0015		052S0016		052S0016D		052S0017	
Lab ID	9709316-12		9709316-13		9709316-14		9709316-15		9709316-16		9709316-17		9709316-18		9709676-01	
Sampling Date	9/12/97		9/12/97		9/12/97		9/12/97		9/12/97		9/12/97		9/12/97		9/12/97	
Pesticides, µg/kg																
4,4'-DDD	7 33	J	6.6	U	133	U	6.6	U	6.6	U	1.3	U	2.7	U	8.03	J
4,4'-DDE	54 3		2.7	U	133	U	22.6		6.6	U	1.3	U	2.7	U	13	U
4,4'-DDT	88 2		14.3		133	U	20.6		6.6	U	1.3	U	2.7	U	13	U
Aldrin	6 7	U	1.3	U	66.6	U	3.3	U	3.3	U	0.7	U	1.3	U	5.36	J
alpha-Chlordane	NQ		NQ		NQ		NQ		NQ		NQ		NQ		NQ	
gamma-Chlordane	NQ		NQ		NQ		NQ		NQ		NQ		NQ		NQ	
Chlordane (Total)	60 1		16.7	U	833	U	8.3	U	41.5	U	6.29	J	15.7	J	81.3	U
alpha-BHC	6.7	U	1.3	U	66.6	U	3.3	U	3.3	U	0.7	U	1.3	U	65	U
beta-BHC	6 7	U	1.3	U	66.6	U	3.3	U	3.3	U	0.7	U	1.3	U	65	U
delta-BHC	6.7	U	1 3	U	66.6	U	3.3	U	3.3	U	0.7	U	1.3	U	65	U
Dieldrin	18.4		2.7	U	526		20.9		6.6	U	1.3	U	2.7	U	8.09	J
Endosulfan I	6.7	U	1.3	U	66.6	U	3.3	U	3.3	U	0.7	U	1.3	U	6.5	U
Endosulfan II	13	U	2.7	U	133	U	6.6	U	6.6	U	1.3	U	2.7	U	13	U
Endosulfan sulfate	13	U	2.7	U	133	U	6.6	U	6.6	U	1.3	U	2.7	U	13	U
Endrin	13	U	2.7	U	133	U	6.6	U	6.6	U	1.3	U	2.7	U	13	U
Endrin aldehyde	13	U	2.7	U	133	U	6.6	U	6.6	U	1.3	U	2.7	U	13	U
Endrin ketone	NQ		NQ		NQ		NQ		NQ		NQ		NQ		NQ	
gamma-BHC (Lindane)	6.7	U	1.3	U	66.6	U	3.3	U	3.3	U	0.7	U	1.3	U	65	U
Heptachlor	6.7	U	1.3	U	66.6	U	3.3	U	3.3	U	0.7	U	1.3	U	6.5	U
Heptachlor epoxide	6.7	U	1.3	U	66.6	U	3.3	U	3.3	U	0.7	U	1.3	U	6.5	U
Methoxychlor	67	U	13.3	U	666	U	33	U	33	U	6.7	U	13.3	U	65	U
Toxaphene	333	U	66	U	3330	U	166	U	166	U	33	U	66	U	325	U

Appendix C

Table C-3 Summary of Groundwater Analytical Results
Initial Site Screening Investigation
Study Area 52

Naval Training Center, Orlando
Orlando, FL

Sample ID	52G00101		52H00101		52G00201		52G00201		52H00201	
Lab ID	MA801003		MA801004		MA801005		MA801005DL		MA801006	
Sampling Date	23-Apr-96		23-Apr-96		23-Apr-96		23-Apr-96		23-Apr-96	
Volatile organics, µg/L										
1,1,1-Trichloroethane	1	U	NA		1	U	NA		NA	
1,1,2,2-Tetrachloroethane	1	U	NA		1	U	NA		NA	
1,1,2-Trichloroethane	1	U	NA		1	U	NA		NA	
1,1-Dichloroethane	1	U	NA		1	U	NA		NA	
1,1-Dichloroethene	1	U	NA		1	U	NA		NA	
1,2-Dibromo-3-chloropropane	1	U	NA		1	U	NA		NA	
1,2-Dibromoethane	1	U	NA		1	U	NA		NA	
1,2-Dichloroethane	1	U	NA		1	U	NA		NA	
1,2-Dichloropropane	1	U	NA		1	U	NA		NA	
2-Butanone	5	UR	NA		5	UR	NA		NA	
2-Hexanone	5	U	NA		5	U	NA		NA	
4-Methyl-2-pentanone	5	U	NA		5	U	NA		NA	
Acetone	3	R	NA		3	R	NA		NA	
Benzene	1	U	NA		1	U	NA		NA	
Bromochloromethane	1	U	NA		1	U	NA		NA	
Bromodichloromethane	1	U	NA		1	U	NA		NA	
Bromoform	1	U	NA		1	U	NA		NA	
Bromomethane	1	U	NA		1	U	NA		NA	
Carbon disulfide	1	U	NA		1	U	NA		NA	
Carbon tetrachloride	1	U	NA		1	U	NA		NA	
Chlorobenzene	1	U	NA		1	U	NA		NA	
Chloroethane	1	U	NA		1	U	NA		NA	
Chloroform	1	U	NA		1	U	NA		NA	
Chloromethane	0.5	J	NA		1	U	NA		NA	
cis-1,2-Dichloroethene	1	U	NA		1	U	NA		NA	
cis-1,3-Dichloropropene	1	U	NA		1	U	NA		NA	
Dibromochloromethane	1	U	NA		1	U	NA		NA	
Ethylbenzene	1	U	NA		1	U	NA		NA	
Methylene chloride	2	U	NA		2	U	NA		NA	
Styrene	1	U	NA		1	U	NA		NA	
Tetrachloroethene	1	U	NA		1	U	NA		NA	
Toluene	1	U	NA		1	U	NA		NA	
trans-1,2-Dichloroethene	1	U	NA		1	U	NA		NA	

Appendix C
Table C-3. Summary of Groundwater Analytical Results
Initial Site Screening Investigation
Study Area 52

Naval Training Center, Orlando
Orlando, FL

Sample ID	52G00101		52H00101		52G00201		52G00201		52H00201	
Lab ID	MA801003		MA801004		MA801005		MA801005DL		MA801006	
Sampling Date	23-Apr-96		23-Apr-96		23-Apr-96		23-Apr-96		23-Apr-96	
trans-1,3-Dichloropropene	1	U	NA		1	U	NA		NA	
Trichloroethene	1	U	NA		1	U	NA		NA	
Vinyl chloride	1	U	NA		1	U	NA		NA	
Xylene (total)	1	U	NA		1	U	NA		NA	
Semivolatile organics, µg/L										
1,2,4-Trichlorobenzene	10	U	NA		10	U	NA		NA	
1,2-Dichlorobenzene	1	U	NA		1	U	NA		NA	
1,3-Dichlorobenzene	1	U	NA		1	U	NA		NA	
1,4-Dichlorobenzene	1	U	NA		1	U	NA		NA	
2,2'-oxybis(1-Chloropropane)	10	U	NA		10	U	NA		NA	
2,4,5-Trichlorophenol	25	U	NA		25	U	NA		NA	
2,4,6-Trichlorophenol	10	U	NA		10	U	NA		NA	
2,4-Dichlorophenol	10	U	NA		10	U	NA		NA	
2,4-Dimethylphenol	10	U	NA		10	U	NA		NA	
2,4-Dinitrophenol	25	U	NA		25	U	NA		NA	
2,4-Dinitrotoluene	10	U	NA		10	U	NA		NA	
2,6-Dinitrotoluene	10	U	NA		10	U	NA		NA	
2-Chloronaphthalene	10	U	NA		10	U	NA		NA	
2-Chlorophenol	10	U	NA		10	U	NA		NA	
2-Methylnaphthalene	10	U	NA		10	U	NA		NA	
2-Methylphenol	10	U	NA		10	U	NA		NA	
2-Nitroaniline	25	U	NA		25	U	NA		NA	
2-Nitrophenol	10	U	NA		10	U	NA		NA	
3,3'-Dichlorobenzidine	10	U	NA		10	U	NA		NA	
3-Nitroaniline	25	U	NA		25	U	NA		NA	
4,6-Dinitro-2-methylphenol	25	U	NA		25	U	NA		NA	
4-Bromophenyl-phenylether	10	U	NA		10	U	NA		NA	
4-Chloro-3-methylphenol	10	U	NA		10	U	NA		NA	
4-Chloroaniline	10	U	NA		10	U	NA		NA	
4-Chlorophenyl-phenylether	10	U	NA		10	U	NA		NA	
4-Methylphenol	10	U	NA		10	U	NA		NA	
4-Nitroaniline	25	U	NA		25	U	NA		NA	
4-Nitrophenol	25	U	NA		25	U	NA		NA	
Acenaphthene	10	U	NA		10	U	NA		NA	

Appendix C

Table C-3. Summary of Groundwater Analytical Results
Initial Site Screening Investigation
Study Area 52

Naval Training Center, Orlando
Orlando, FL

Sample ID	52G00101		52H00101		52G00201		52G00201		52H00201	
Lab ID	MA801003		MA801004		MA801005		MA801005DL		MA801006	
Sampling Date	23-Apr-96		23-Apr-96		23-Apr-96		23-Apr-96		23-Apr-96	
Acenaphthylene	10	U	NA		10	U	NA		NA	
Anthracene	10	U	NA		10	U	NA		NA	
Benzo(a)anthracene	10	U	NA		10	U	NA		NA	
Benzo(a)pyrene	10	U	NA		10	U	NA		NA	
Benzo(b)fluoranthene	10	U	NA		10	U	NA		NA	
Benzo(g,h,i)perylene	10	U	NA		10	U	NA		NA	
Benzo(k)fluoranthene	10	U	NA		10	U	NA		NA	
bis(2-Chloroethoxy)methane	10	U	NA		10	U	NA		NA	
bis(2-Chloroethyl)ether	10	U	NA		10	U	NA		NA	
bis(2-Ethylhexyl)phthalate	10	U	NA		10	U	NA		NA	
Butylbenzylphthalate	10	U	NA		10	U	NA		NA	
Carbazole	10	U	NA		10	U	NA		NA	
Chrysene	10	U	NA		10	U	NA		NA	
Di-n-butylphthalate	10	U	NA		10	U	NA		NA	
Di-n-octylphthalate	10	U	NA		10	U	NA		NA	
Dibenz(a,h)anthracene	10	U	NA		10	U	NA		NA	
Dibenzofuran	10	U	NA		10	U	NA		NA	
Diethylphthalate	10	U	NA		10	U	NA		NA	
Dimethylphthalate	10	U	NA		10	U	NA		NA	
Fluoranthene	10	U	NA		10	U	NA		NA	
Fluorene	10	U	NA		10	U	NA		NA	
Hexachlorobenzene	10	U	NA		10	U	NA		NA	
Hexachlorobutadiene	10	U	NA		10	U	NA		NA	
Hexachlorocyclopentadiene	10	U	NA		10	U	NA		NA	
Hexachloroethane	10	U	NA		10	U	NA		NA	
Indeno(1,2,3-cd)pyrene	10	U	NA		10	U	NA		NA	
Isophorone	10	U	NA		10	U	NA		NA	
N-Nitroso-di-n-propylamine	10	U	NA		10	U	NA		NA	
N-Nitrosodiphenylamine (1)	10	U	NA		10	U	NA		NA	
Naphthalene	10	U	NA		10	U	NA		NA	
Nitrobenzene	10	U	NA		10	U	NA		NA	
Pentachlorophenol	25	U	NA		25	U	NA		NA	
Phenanthrene	10	U	NA		10	U	NA		NA	
Phenol	10	U	NA		10	U	NA		NA	

Appendix C
Table C-3. Summary of Groundwater Analytical Results
Initial Site Screening Investigation
Study Area 52

Naval Training Center, Orlando
Orlando, FL

Sample ID	52G00101		52H00101		52G00201		52G00201		52H00201	
Lab ID	MA801003		MA801004		MA801005		MA801005DL		MA801006	
Sampling Date	23-Apr-96		23-Apr-96		23-Apr-96		23-Apr-96		23-Apr-96	
Pyrene	10	U	NA		10	U	NA		NA	
Pesticides/PCBs, µg/L										
4,4'-DDD	0.1	U	NA		0.1	U	1	UR	NA	
4,4'-DDE	0.1	U	NA		0.1	U	1	UR	NA	
4,4'-DDT	0.1	U	NA		0.1	U	1	UR	NA	
Aldrin	0.05	U	NA		0.05	U	0.5	UR	NA	
alpha-BHC	0.05	UJ	NA		0.05	UJ	0.5	UR	NA	
alpha-Chlordane	0.05	U	NA		0.05	U	0.5	UR	NA	
Aroclor-1016	0.5	U	NA		0.5	U	5	UR	NA	
Aroclor-1221	0.5	U	NA		0.5	U	5	UR	NA	
Aroclor-1232	0.5	U	NA		0.5	U	5	UR	NA	
Aroclor-1242	0.5	U	NA		0.5	U	5	UR	NA	
Aroclor-1248	0.5	U	NA		0.5	U	5	UR	NA	
Aroclor-1254	0.5	U	NA		0.5	U	5	UR	NA	
Aroclor-1260	0.5	U	NA		0.5	U	5	UR	NA	
beta-BHC	0.05	U	NA		0.05	U	0.5	UR	NA	
delta-BHC	0.05	U	NA		0.05	U	0.5	UR	NA	
Dieldrin	0.11		NA		2	ER	2.3	D	NA	
Endosulfan I	0.05	U	NA		0.05	U	0.5	UR	NA	
Endosulfan II	0.1	U	NA		0.1	U	1	UR	NA	
Endosulfan sulfate	0.1	U	NA		0.1	U	1	UR	NA	
Endrin	0.1	U	NA		0.1	U	1	UR	NA	
Endrin aldehyde	0.1	U	NA		0.1	U	1	UR	NA	
Endrin ketone	0.1	U	NA		0.1	U	1	UR	NA	
gamma-BHC (Lindane)	0.05	U	NA		0.05	U	0.5	UR	NA	
gamma-Chlordane	0.05	U	NA		0.05	U	0.5	UR	NA	
Heptachlor	0.05	U	NA		0.05	U	0.5	UR	NA	
Heptachlor epoxide	0.05	U	NA		0.05	U	0.5	UR	NA	
Methoxychlor	0.5	UJ	NA		0.5	UJ	5	UR	NA	
Toxaphene	5	U	NA		5	U	50	UR	NA	

Appendix C

Table C-3. Summary of Groundwater Analytical Results

Initial Site Screening Investigation

Study Area 52

Naval Training Center, Orlando

Orlando, FL

Sample ID	52G00101		52H00101		52G00201		52G00201		52H00201	
Lab ID	MA801003		MA801004		MA801005		MA801005DL		MA801006	
Sampling Date	23-Apr-96		23-Apr-96		23-Apr-96		23-Apr-96		23-Apr-96	
Inorganics, µg/L										
Aluminum	195	U	3920	J	4750	J	NA		8630	J
Antimony	2.4	R	2	R	2	R	NA		1.1	UR
Arsenic	1.3	UJ	1.3	UJ	1.3	UJ	NA		1.4	J
Barium	7.2	U	8	U	4.7	U	NA		4.7	U
Beryllium	0.15	U	0.15	U	0.15	U	NA		0.15	U
Cadmium	1.8	UJ	2.7	J	1.8	UJ	NA		1.8	UJ
Calcium	20900		21200		19200		NA		18800	
Chromium	2.2	U	6.7	B	7.1	B	NA		13.7	
Cobalt	1.5	U	1.5	U	1.5	U	NA		1.5	U
Copper	2	U	2	U	3.1	B	NA		2	U
Iron	79.4	J	251	J	202	J	NA		304	J
Lead	1.2	U	3.5	U	2.2	U	NA		2.5	U
Magnesium	627	B	675	B	483	B	NA		469	B
Manganese	5.8	B	5.2	U	3.4	U	NA		3.2	U
Mercury	0.07	UJ	0.12	J	0.09	J	NA		0.25	J
Nickel	7.7	U	7.7	U	7.7	U	NA		7.7	U
Potassium	767	U	767	U	767	U	NA		767	U
Selenium	1.3	U	1.3	U	2.9	B	NA		5.7	
Silver	2.2	UR	2.2	UR	2.2	UR	NA		2.2	UR
Sodium	2140	J	1970	J	1140	J	NA		1040	J
Thallium	0.86	U	0.86	UJ	0.86	U	NA		0.86	U
Vanadium	4	B	6.1	B	4.5	B	NA		8.2	B
Zinc	5.2	U	9	U	4.2	U	NA		4.3	U
General Chemistry, mg/L										
Total Petroleum Hydrocarbons	NA		NA		0.05	U	NA		NA	
Total Suspended Solids	4	U	NA		57		NA		NA	

Appendix C

Table C-4. Summary of Groundwater Analytical Results

Supplemental Sampling - Pesticides

Study Area 52

Naval Training Center, Orlando

Orlando, FL

Sample ID	52G00601		52G00701		52G00801		52G00801D		52G00901		52G01001		52G01101		52G01102		52G01103		52G01104		52G01201	
Lab ID	J9601992-02		J9601992-05		J9601992-03		J9601992-04		J9601992-06		J9601992-01		S775908*1								S775908*2	
Sampling Date	26-Dec-97		26-Dec-97		26-Dec-97		26-Dec-97		26-Dec-97		26-Dec-97		10/16/97		2/5/98		4/29/98		9/9/98		10/16/97	
Pesticides/PCBs, µg/l																						
4,4'-DDD	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	1	U	0.1	U	0.05	U	0.05	U	0.5	U	0.1	U
4,4'-DDE	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	1.4		0.1	U	0.05	U	0.05	U	0.5	U	0.1	U
4,4'-DDT	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.7	U	0.1	U	0.05	U	0.05	U	0.5	U	0.1	U
Aldrin	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.4	U	0.05	U	0.025	U	0.025	U	0.25	U	0.05	U
alpha-BHC	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.4	U	0.05	U	0.025	U	0.025	U	0.25	U	0.05	U
alpha-Chlordane	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	1	U	NQ		0.025	U	0.025	U	0.25	U	NQ	
Aroclor-1016	NA		NA		NA		NA		NA		NA		1	U	NA		NA		NA		1	U
Aroclor-1221	NA		NA		NA		NA		NA		NA		2	U	NA		NA		NA		2	U
Aroclor-1232	NA		NA		NA		NA		NA		NA		1	U	NA		NA		NA		1	U
Aroclor-1242	NA		NA		NA		NA		NA		NA		1	U	NA		NA		NA		1	U
Aroclor-1248	NA		NA		NA		NA		NA		NA		1	U	NA		NA		NA		1	U
Aroclor-1254	NA		NA		NA		NA		NA		NA		1	U	NA		NA		NA		1	U
Aroclor-1260	NA		NA		NA		NA		NA		NA		1	U	NA		NA		NA		1	U
beta-BHC	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.4	U	0.05	U	0.025	U	0.025	U	0.25	U	0.05	U
Chlordane (total)	NA		NA		NA		NA		NA		NA		0.5	U	NA		NA		NA		0.5	U
delta-BHC	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.4	U	0.05	U	0.025	U	0.025	U	0.25	U	0.05	U
Dieldrin	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	7.2		0.1	U	0.05	U	0.05	U	0.5	U	0.1	U
Endosulfan I	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.5	U	0.05	U	0.025	U	0.025	U	0.25	U	0.05	U
Endosulfan II	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.4	U	0.1	U	0.05	U	0.05	U	0.5	U	0.1	U
Endosulfan sulfate	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.4	U	0.1	U	0.05	U	0.05	U	0.5	U	0.1	U
Endrin	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	1	U	0.1	U	0.05	U	0.05	U	0.5	U	0.1	U
Endrin aldehyde	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.4	U	0.1	U	0.05	U	0.05	U	0.5	U	0.1	U
Endrin ketone	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.9		NA		0.05	U	0.05	U	0.5	U	NA	U
gamma-BHC (Lindane)	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.4	U	0.05	U	0.025	U	0.025	U	0.25	U	0.05	U
gamma-Chlordane	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.9		NQ		0.025	U	0.025	U	0.25	U	NQ	
Heptachlor	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.6		0.05	U	0.025	U	0.025	U	0.25	U	0.05	U
Heptachlor epoxide	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.4	U	0.05	U	0.025	U	0.025	U	0.25	U	0.05	U
Methoxychlor	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	1	U	0.5	U	0.25	U	0.25	U	2.5	U	0.5	U
Toxaphene	1	U	1	U	1	U	1	U	1	U	10	U	5	U	1.2	U	1.2	U	12	U	5	U

Appendix C
Table C-4. Summary of Groundwater Analytical Results
Supplemental Sampling - Pesticides
Study Area 52

Naval Training Center, Orlando
Orlando, FL

Sample ID	52G01202		52G01203		52G01204		52G01301		52G01302		52G01303		52G01304	
Lab ID							S775908*3							
Sampling Date	2/5/98		4/29/98		9/9/98		10/16/97		2/5/98		4/29/98		9/9/98	
Pesticides/PCBs, µg/l														
4,4'-DDD	0.05	U	0.05	U	0.05	U	2.5	U	0.05	U	0.05	U	0.05	U
4,4'-DDE	0.05	U	0.05	U	0.05	U	2.5	U	0.05	U	0.05	U	0.05	U
4,4'-DDT	0.05	U	0.05	U	0.05	U	2.5	U	0.05	U	0.27	PF	0.27	U
Aldrin	0.025	U	0.025	U	0.025	U	1.2	U	0.025	U	0.025	U	0.025	U
alpha-BHC	0.025	U	0.025	U	0.025	U	1.2	U	0.025	U	0.025	U	0.025	U
alpha-Chlordane	0.025	U	0.025	U	0.025	U	NQ		0.025	U	0.025	U	0.025	U
Aroclor-1016	NA		NA		NA		25	U	NA		NA		NA	
Aroclor-1221	NA		NA		NA		50	U	NA		NA		NA	
Aroclor-1232	NA		NA		NA		25	U	NA		NA		NA	
Aroclor-1242	NA		NA		NA		25	U	NA		NA		NA	
Aroclor-1248	NA		NA		NA		25	U	NA		NA		NA	
Aroclor-1254	NA		NA		NA		25	U	NA		NA		NA	
Aroclor-1260	NA		NA		NA		25	U	NA		NA		NA	
beta-BHC	0.025	U	0.025	U	0.025	U	1.2	U	0.025	U	0.025	U	0.025	U
Chlordane (total)	NA		NA		NA		12	U	NA		NA		NA	
delta-BHC	0.025	U	0.025	U	0.025	U	1.2	U	0.025	U	0.025	U	0.025	U
Dieldrin	0.05	U	0.05	U	0.05	U	5.6	P	0.2		0.31		0.08	
Endosulfan I	0.025	U	0.025	U	0.025	U	1.2	U	0.025	U	0.03	PF	0.03	U
Endosulfan II	0.05	U	0.05	U	0.05	U	2.5	U	0.05	U	0.05	U	0.05	U
Endosulfan sulfate	0.05	U	0.05	U	0.05	U	2.5	U	0.05	U	0.05	U	0.05	U
Endrin	0.05	U	0.05	U	0.05	U	2.5	U	0.05	U	0.05	U	0.05	U
Endrin aldehyde	0.05	U	0.05	U	0.05	U	2.5	U	0.05	U	0.05	U	0.05	U
Endrin ketone	0.05	U	0.05	U	0.05	U	NA		0.05	U	0.05	U	0.05	U
gamma-BHC (Lindane)	0.025	U	0.025	U	0.025	U	1.2	U	0.025	U	0.025	U	0.025	U
gamma-Chlordane	0.025	U	0.025	U	0.025	U	NQ		0.025	U	0.025	U	0.025	U
Heptachlor	0.025	U	0.025	U	0.025	U	1.2	U	0.025	U	0.025	U	0.025	U
Heptachlor epoxide	0.025	U	0.025	U	0.025	U	1.2	U	0.025	U	0.025	U	0.025	U
Methoxychlor	0.25	U	0.25	U	0.25	U	12	U	0.25	U	0.25	U	0.25	U
Toxaphene	1.2	U	1.2	U	1.2	U	120	U	1.2	U	1.2	U	1.2	U

Appendix C
Notes for Summary of Analytical Results Tables
Study Area 52

Naval Training Center, Orlando
Orlando Florida

NA = Identified parameter not analyzed.
NQ = Identified parameter not quantified or reported by the laboratory.
Sample ID = Sample Identifier
Lab ID = Laboratory identifier

Units:

mg/kg = milligram per kilogram
µg/kg = microgram per kilogram
mg/L = milligram per liter
µg/L = microgram per liter

The following standard validation qualifiers have the following definitions:

B	The inorganic analyte was positively identified and the associated numerical value is an estimated concentration because the detection was below the contract required detection limit (CRDL) and above the instrument detection limit.
C	The presence of this compound has been confirmed by GC/MS analysis.
D	The reported value for the compound has been quantified at a secondary dilution factor. This value typically is used in favor of E qualified values. When this applies, the E qualifier are flagged ER; D qualified values that are rejected in favor of the original results are flagged DR.
E	The reported value for the compound exceeds the linear calibration range for that compound. Therefore, the sample have been reanalyzed at an appropriate dilution (sample identifiers ending in DL).
J	The analyte/compound was positively identified and the associated numerical value is an estimated concentration of the analyte/compound in the sample.
NJ	Presumptive presence of the compound at an estimated concentration
PF	The percent difference between the original and confirmation analyses is greater than 50%.
R	The sample results are rejected during data validation because of serious deficiencies in meeting quality control criteria.
U	The analyte/compound was analyzed for but was not detected above the reported sample quantitation limit. The number preceding the U qualifier is the reported sample quantitation limit.
UJ	The analyte/compound was not detected above the reported sample quantitation limit. The reported quantitation limit, however, is approximate and may or may not represent the actual limit of quantitation necessary to accurately measure the analyte/compound in the sample.

APPENDIX D

IMMUNOASSAY TESTING, ADDITIONAL SITE SCREENING

Table D-1 Immunoassay Results, Additional Site Screening
Table D-2 Comparison of On-Site Immunoassay and Off-Site Analytical Results, Additional Site Screening

Table D-1
Immunoassay Screening Results
Total Chlorinated Pesticides
Study Area 52

Naval Training Center, Orlando
Orlando, FL

SAMPLE ID	EASTING	NORTHING	DEPTH (feet bls)	TOTAL PESTICIDES (ug/kg)	DUPLICATE (ug/kg)
52S00501	1960	2000	0-1	90	175
52S00601	2000	1980	0-1	0	
52S00701	2000	2000	0-1	1700	
52S00801	1960	1990	0-1	50	
52S00901	2000	1990	0-1	>9000	
52S01001	1960	1980	0-1	110	
52S01101	1960	1970	0-1	100	
52S01201	2000	1970	0-1	>9000	
52S01301	2000	1960	0-1	4800	
52S01401	1960	1960	0-1	20	
52S01501	2000	1950	0-1	1000	
52S01601	1960	1950	0-1	>9000	>9000
52S01701	1960	1940	0-1	50	
52S01801	2000	1940	0-1	2000	
52S01901	1950	1960	0-1	>9000	
52S02001	1950	1950	0-1	225	
52S02101	1990	1940	0-1	2050	
52S02201	1950	1940	0-1	100	
52S02301	1950	1930	0-1	175	
52S02401	1990	1950	0-1	>9000	
52S02501	1940	1950	0-1	25	
52S02601	1990	1960	0-1	>9000	
52S02602	1990	1960	1-2	3700	
52S02603	1990	1960	2-3	7100	
52S02604	1990	1960	3-4	9000	
52S02701	1940	1940	0-1	>9000	
52S02801	1990	1970	0-1	>9000	>9000
52S02901	1940	1930	0-1	0	
52S03001	1990	1980	0-1	7800	
52S03101	1970	1940	0-1	125	
52S03201	1990	1990	0-1	7300	
52S03301	1990	2000	0-1	250	
52S03401	1970	1950	0-1	10	
52S03501	1980	2000	0-1	225	
52S03601	1970	1960	0-1	5050	
52S03701	1980	1990	0-1	>9000	
52S03702	1980	1990	1-2	>9000	
52S03703	1980	1990	2-3	0	
52S03704	1980	1990	3-4	0	
52S03801	1970	1970	0-1	2450	
52S03901	1970	1980	0-1	1750	
52S04001	1980	1980	0-1	2450	
52S04101	1970	1990	0-1	>9000	
52S04201	1980	1970	0-1	7000	
52S04301	1970	2000	0-1	1750	
52S04401	1980	1960	0-1	>9000	>9000
52S04501	1980	1950	0-1	7500	
52S04601	1960	1930	0-1	2800	

Table D-1
Immunoassay Screening Results
Total Chlorinated Pesticides
Study Area 52

Naval Training Center, Orlando
Orlando, FL

SAMPLE ID	EASTING	NORTHING	DEPTH (feet bls)	TOTAL PESTICIDES (ug/kg)	DUPLICATE (ug/kg)
52S04701	1980	1940	0-1	0	0
52S04801	1970	2010	0-1	175	
52S04901	2000	2010	0-1	225	
52S05001	2010	1990	0-1	1950	
52S05101	2010	1970	0-1	>9000	
52S05201	2010	1960	0-1	>9000	
52S05301	2010	1950	0-1	>9000	
52S05401	2010	1940	0-1	6700	
52S05501	2000	1930	0-1	>9000	
52S05601	1990	1930	0-1	125	
52S05701	1960	1920	0-1	2200	
52S05801	1930	1940	0-1	0	
52S05901	1940	1960	0-1	150	
52S06001	1950	1970	0-1	0	
52S06101	1930	2000	0-1	50	
52S06201	2020	2000	0-1	475	
52S06301	2020	1920	0-1	875	
52S06401	2030	1930	0-1	1775	
52S06501	2020	1940	0-1	1225	
52S06601	2020	1990	0-1	3400	
52S06701	2020	1970	0-1	1400	
52S06801	2030	1970	0-1	0	
52S06901	2020	1960	0-1	1050	
52S06902	2020	1960	2-3	0	
52S07001	2040	1940	0-1	0	
52S07101	2020	1950	0-1	900	
52S07201	2000	1910	0-1	0	

NOTES:
All analytical results expressed in micrograms per kilogram (ug/kg) soil dry weight.
bls = below level surface.
Total pesticides include Chlordane and structurally similar compounds.

Table D-2. Comparison of Onsite and Offsite Analytical Results (Immunoassay Versus Method 8080)
Total Chlorinated Pesticides
Study Area 52

Naval Training Center
Orlando, Florida

Sample ID	Total Chlorinated Pesticides (excluding DDT, DDD, and DDE)		Remarks
	Onsite Immunoassay Results	Offsite 8080 Confirmation Results	Are both Immunoassay and 8080 results above or below the screening value (70 ug/kg) for the split sample?
52S02604	9,000	4,909	YES
52S03702	> 9,000	1,207	YES
52S03703	**0**	**71**	**NO**
52S04401	> 9,000	31,831	YES
52S04401D	> 9,000	28,821	YES
52S05301	> 9,000	47,700	YES
52S05801	0	0	YES
52S06201	475	76	YES
52S06301	875	145	YES
52S06401	1,775	1,063	YES
52S06601	3,400	2,061	YES

All results expressed in micrograms per kilogram (mg/kg) soil dry weight.
Shaded entry indicates a false negative.

APPENDIX E

COMPLETION REPORT
INTERIM REMEDIAL ACTION FOR STUDY AREA 52
ENVIRONMENTAL DETACHMENT CHARLESTON

COMPLETION REPORT

INTERIM REMEDIAL ACTION FOR
SA 8, SA 9, SA 52
NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Note:
Only chapters and appendices of the Environmental Detachment's report that apply to Study Area 52 are included in Appendix G to this report.

Prepared for:

DEPARTMENT OF THE NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CHARLESTON SC

Prepared by:

Supervisor of Shipbuilding, Conversion and Repair,
USN, (SUPSHIP) Portsmouth Va.,
Environmental Detachment Charleston, S.C.
1899 North Hobson Ave.
North Charleston, SC 29405-2106

November 13, 1997

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Appendix D Sampling Documentation Fill Dirt D-1

ACRONYMS, ABBREVIATIONS and SYMBOL

ABB-ES	ABB Environmental Services
BLS	Below Land Surface
CFR	Code of Federal Regulations
DET	Environmental Detachment Charleston
DRMO	Defense Reutilization and Marketing Office
EPA	Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
IA	Immunoassay
IRA	Interim Remedial Action
NTC	Naval Training Center
OPT	Orlando Partnering Team
PPB	Parts Per Billion
RBC	Risk Based Concentration
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
SA	Study Area
SCG	Soil Cleanup Goals
SOUTHDIV	Southern Division Naval Facilities Engineering Command
SUPSHIP	Supervisor of Shipbuilding, Conversion and Repair, USN
TSDF	Treatment, Storage and Disposal Facility
USEPA	United States Environmental Protection Agency
USN	United States Navy

1. INTRODUCTION

1.1 OBJECTIVE Southern Division Naval Facilities Engineering Command (SOUTHDIV) tasked Supervisor of Shipbuilding, Conversion and Repair, Portsmouth, Va. Environmental Detachment Charleston (DET) to provide an Interim Remedial Action (IRA) Work Plan for Study Areas (SA) 8 and 9 at the Naval Training Center (NTC) and for SA-52 at the McCoy Annex, Orlando, Florida. The objective of this IRA was to excavate and dispose of the arsenic, pesticide and benzo(a)pyrene contaminated soils at these three sites.

The arsenic contaminated soil at SA-8 was excavated to dimensions specified by ABB-Environmental Services, Inc. (ABB-ES) in their letter to SOUTHDIV dated April 14, 1997. Confirmation samples were not required at this site per the Orlando Partnering Team (OPT) instructions.

The original scope for SA-9 included immunoassay (IA) testing prior to excavation in order to delineate the extent of contamination. The IA tests were capable of detecting Chlordane and structurally similar organochloride pesticides at 10, 100 and 600 parts per billion (PPB). The excavation was to be based on these IA test results but was not to exceed an area 10' X 10' by 2' in depth without OPT approval.

The pesticide contaminated soil at SA-52 was excavated based on ABB-ES sampling data and IA testing performed by the DET to determine the depth of contamination.

The cleanup goals for these sites are the residential limits specified by the Florida Department of Environmental Protection (FDEP) Soil Cleanup Goals (SCG), dated 29 September 1995, or the United States Environmental Protection Agency (EPA) Region III Risk Based Concentrations (RBCs), whichever specifies the stricter criteria. This IRA may not necessarily be the final remedial action taken at these sites. Additional actions may be required as determined by the Remedial Investigation/Feasibility Study (RI/FS) process. This IRA is consistent with the ultimate cleanup of

the site and is not intended to circumvent the public participation process inherent within environmental cleanup under Resource Conservation and Recovery Act (RCRA).

4. STUDY AREA 52

4.1 SITE HISTORY SA-52 is the former entomology laboratory, Building 7261, located on the McCoy Annex. Background information indicates the lab was in use from approximately 1960 to 1980. The building has since been demolished. The initial site screening investigation conducted in April 1996 indicated 2 sample locations with elevated levels of chlorinated pesticides. Refer to the table below for sample results. ABB-ES further delineated the site using IA test kits capable of detecting chlordane and structurally similar chlorinated pesticides.

CONTAMINANT µg/kg	SAMPLE ID # 52S00201	SAMPLE ID # 52S00301
DDT	11000	
alpha-Chlordane	110000	
gamma-Chlordane	110000	
Dieldrin	53000	150
Heptachlor	17000	

4.2 ACTIONS PERFORMED AT SA- 52 The actions performed at SA-52 are listed below.

- IA testing after an initial excavation of 120' X 100' by 2 ' in depth indicated deeper excavation was required around ABB-ES sample location 52S026. An area approximately 60' X 80' by 5' in depth was further excavated.

- Confirmation samples taken indicated an additional area at DET sample location NTC052S013 required deeper excavation. This area was excavated to ground water in accordance with OPT instructions and an additional confirmation sample was taken.

4.3 OBSERVATIONS NOTED

- From approximately 6" BLS, the soil appeared to be fill dirt. From 6" to 2' BLS, the soil was light colored sand. From 2' BLS to the bottom of the excavation at ground water, the soil was dark silty sand.

4.4 SAMPLING EVOLUTIONS AND RESULTS FOR SA-52 IA testing was used to determine the required depth of the excavation after the initial 120' X 100' excavation.

Sixteen confirmation samples were taken at the completion of the excavation. DET sample location NTC052S0013 indicated an additional area required deeper excavation. This area was excavated to ground water in accordance with OPT instructions and an additional confirmation sample was taken. All samples were taken at the first interval (0' to 2') except at DET sample locations NTC052S0004, NTC052S0005, NTC052S0007 and NTC052S0010 which were approximately 4' in depth and at groundwater. Three of these samples had levels greater than the EPA residential limits for pesticides. See Appendix C for confirmation sample results.

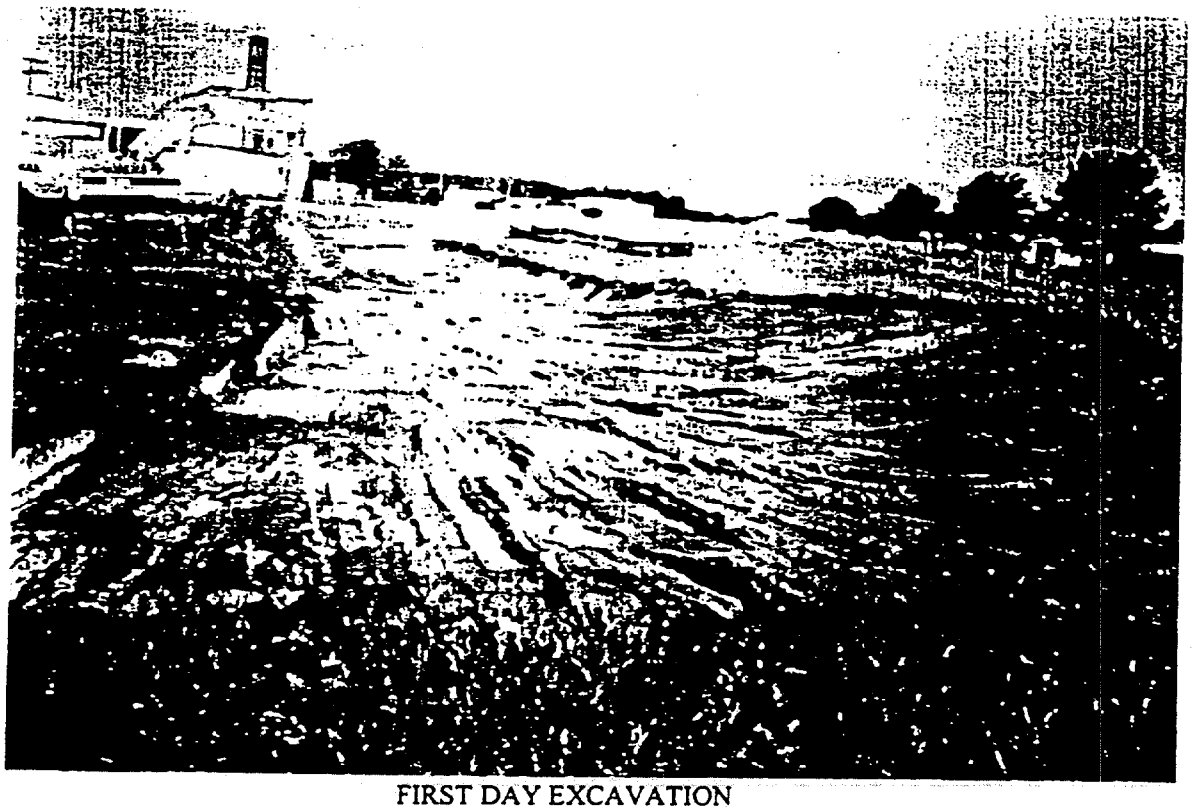
µg/kg	DDD	DDT	DIELDRIN
SCG(RES)	4400	3100	70
SCG(IND)	17000	12000	300
RBC(RES)	2700	1900	40
RBC(IND)	2400	17000	360
NTC052S0005	12300	93000	13900
NTC052S0007		15400	
NTC052S0010			56.1

4.5 SITE CONDITIONS FOLLOWING COMPLETION OF WORK. Following completion of all site work on September 25, 1997, the DET had removed 1308 tons of pesticide contaminated soil at SA-52. The excavation was filled with Florida certified clean soil, graded to surrounding conditions and seeded.

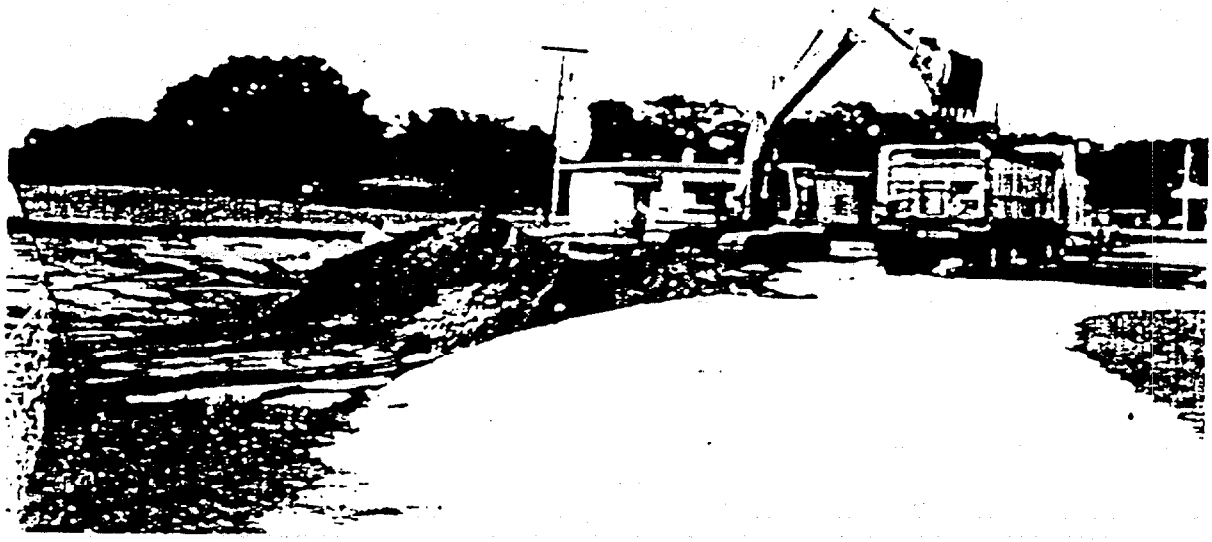
4.6 WASTE GENERATION

All soil excavated from this site was considered hazardous and disposed of to a permitted TSDF in accordance with 40 CFR, Part 264, through DRMO.

4.7 SITE PHOTOGRAPHS/MAPS Site photographs are provided on pages 4-3 through 4-5. Site maps are provided on pages 4-6 and 4-7.

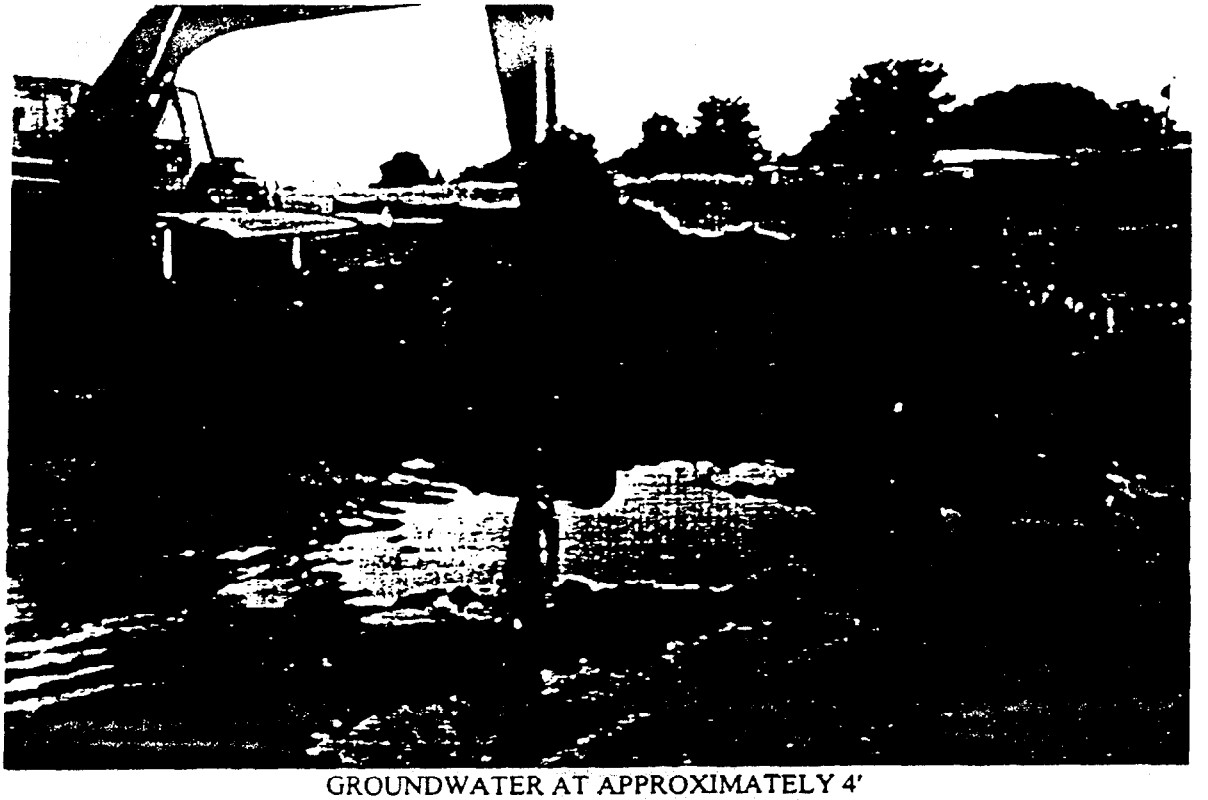


FIRST DAY EXCAVATION



LOADING TRUCK

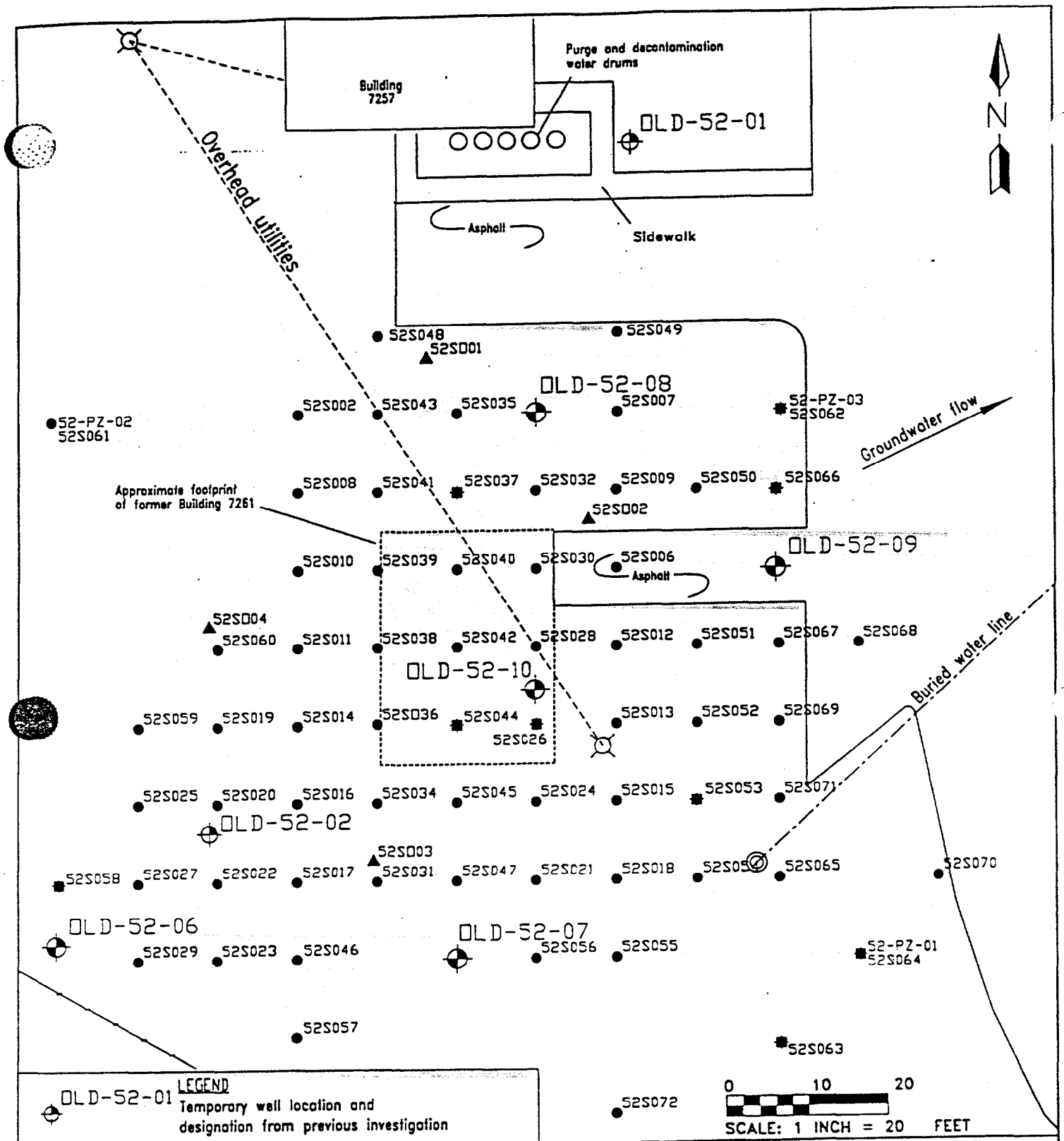
EXCAVATION TO GROUNDWATER



GROUNDWATER AT APPROXIMATELY 4'

BACKFILLING EXCAVATION

SA - 52 AFTER BACKFILLING, SEEDING AND MULCHING



URE 2
TE PLAN

TECHNICAL MEMORANDUM
SITE SCREENING INVESTIGATION
STUDY AREA 52

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

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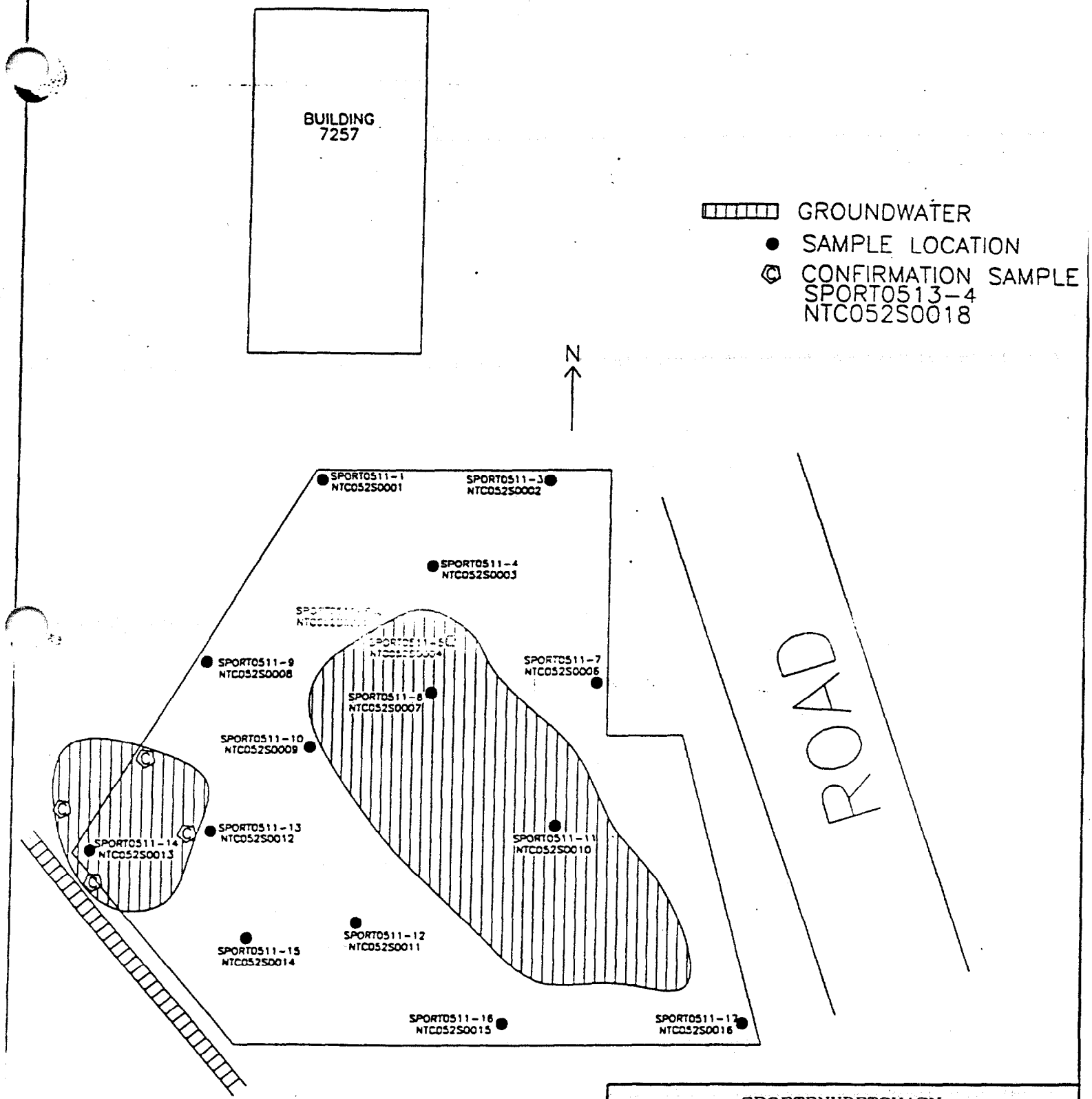

SOIL SAMPLE LOCATIONS

SPORTENVDETCHASN
1899 North Hobson Ave.
North Charleston, SC 29405-2106
Ph. (803) 743-6777

NAVAL TRAINING CENTER
ORLANDO, FLORIDA
STUDY AREA 52

DWG DATE: 11/10/97 | DWG NAME: TLSA52

5 PLAN MODIFICATIONS AND JUSTIFICATIONS

5.1 ADDENDUM 1 An addendum to the original work plan was written on September 5, 1997 to incorporate comments received from EPA on September 4, 1997. Additionally, SA-27, a petroleum contaminated site was added to the work plan for remediation. Listed below are the specifics of the addendum.

- EPA's comments concerning sampling protocol were answered in the addendum. The DET supplied EPA with a copy of the Environmental Detachment Charleston Sampling Plan and the Florida certification number for General Engineering Laboratory of Charleston.

- The DET incorporated EPA RBCs as an alternate to FDEP SGC. Whichever specified the stricter criteria was to be used as a clean up goal.

- Florida certified clean fill dirt was specified as backfill material. Analytical data of a representative sample is provided in Appendix D.

5.2 DEVIATIONS TO ADDENDUM 1

- The OPT requested the DET excavate SA-27 if time allowed. Due to the growth of the SA-9 excavation, the DET was unable to accomplish this task.

APPENDIX C

SAMPLE DATA
SA - 52

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID	: SPORT0511-1
Lab ID	: 9709316-01
Matrix	: Soil
Date Collected	: 09/12/97
Date Received	: 09/15/97
Priority	: Urgent
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
Method 8080 - Organochlorine Pesticides - 19 items											
4,4'-DDD	U	0.00	0.662	1.33	ug/kg	1.0	JLS	09/15/97	2207	107881	1
4,4'-DDE	U	0.00	0.662	1.33	ug/kg	1.0					
4,4'-DDT	U	0.00	0.662	1.33	ug/kg	1.0					
Aldrin	U	0.00	0.331	0.670	ug/kg	1.0					
Chlordane	J	5.20	4.14	8.33	ug/kg	1.0					
Dieldrin	U	0.00	0.662	1.33	ug/kg	1.0					
Endosulfan I	U	0.00	0.331	0.670	ug/kg	1.0					
Endosulfan II	U	0.00	0.662	1.33	ug/kg	1.0					
Endosulfan sulfate	U	0.00	0.662	1.33	ug/kg	1.0					
Endrin	U	0.00	0.662	1.33	ug/kg	1.0					
Endrin aldehyde	U	0.00	0.662	1.33	ug/kg	1.0					
Heptachlor	U	0.00	0.331	0.670	ug/kg	1.0					
Heptachlor epoxide	U	0.00	0.331	0.670	ug/kg	1.0					
Methoxychlor	U	0.00	3.31	6.67	ug/kg	1.0					
Toxaphene	U	0.00	16.6	33.1	ug/kg	1.0					
alpha-BHC	U	0.00	0.331	0.670	ug/kg	1.0					
beta-BHC	U	0.00	0.331	0.670	ug/kg	1.0					
delta-BHC	U	0.00	0.331	0.670	ug/kg	1.0					
gamma-BHC	U	0.00	0.331	0.670	ug/kg	1.0					

The following prep procedures were performed:

Pesticides JLS 09/15/97 1200 107881 2

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E874[illegible]8
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID : SPORT0511-1

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	P8080	27.9*	(45.8 - 148.)
Dibutylchlorendate	P8080	92.3	(30.7 - 143.)

M = Method	Method-Description
M 1	EPA 8080
M 2	EPA 3550

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

Karen Blakeney
Reviewed By

GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID : SPORT0511-2
Lab ID : 9709316-02
Matrix : Soil
Date Collected : 09/12/97
Date Received : 09/15/97
Priority : Urgent
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
Method 8080 - Organochlorine Pesticides - 19 items											
4,4'-DDD	U	0.00	0.660	1.33	ug/kg	1.0	JLS	09/15/97	2245	107881	1
4,4'-DDE	U	0.00	0.660	1.33	ug/kg	1.0					
4,4'-DDT	U	0.00	0.660	1.33	ug/kg	1.0					
Aldrin	U	0.00	0.330	0.670	ug/kg	1.0					
Chlordane		56.1	4.13	8.33	ug/kg	1.0					
Dieldrin		26.4	3.30	6.60	ug/kg	5.0	JLS	09/17/97	1344	107881	1
Endosulfan I	U	0.00	0.330	0.670	ug/kg	1.0	JLS	09/15/97	2245	107881	1
Endosulfan II	U	0.558	0.660	1.33	ug/kg	1.0					
Endosulfan sulfate	U	0.00	0.660	1.33	ug/kg	1.0					
Endrin	J	1.30	0.660	1.33	ug/kg	1.0					
Endrin aldehyde	U	0.00	0.660	1.33	ug/kg	1.0					
Heptachlor	U	0.00	0.330	0.670	ug/kg	1.0					
Heptachlor epoxide	U	0.00	0.330	0.670	ug/kg	1.0					
Methoxychlor	U	0.00	3.30	6.67	ug/kg	1.0					
Toxaphene	U	0.00	16.5	33.0	ug/kg	1.0					
alpha-BHC	U	0.00	0.330	0.670	ug/kg	1.0					
beta-BHC	U	0.00	0.330	0.670	ug/kg	1.0					
delta-BHC	U	0.00	0.330	0.670	ug/kg	1.0					
gamma-BHC	U	0.00	0.330	0.670	ug/kg	1.0					

The following prep procedures were performed:

Pesticides	JLS	09/15/97	1200	107881	2

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E874[illegible]
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID : SPORT0511-2

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	P8080	57.7	(45.8 - 148.)
Dibutylchlorendate	P8080	110.	(30.7 - 143.)

M = Method	Method-Description
M 1	EPA 8080
M 2	EPA 3550

Notes:
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Karen Blakeney
Reviewed By

GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID	: SPORT0511-3
Lab ID	: 9709316-03
Matrix	: Soil
Date Collected	: 09/12/97
Date Received	: 09/15/97
Priority	: Urgent
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
ethod 8080 - Organochlorine Pesticides - 19 items											
4,4'-DDD	U	0.00	0.660	1.33	ug/kg	1.0	JLS	09/17/97	1422	107881	1
4,4'-DDE	U	0.00	0.660	1.33	ug/kg	1.0					
4,4'-DDT		1.45	0.660	1.33	ug/kg	1.0					
Aldrin	J	0.611	0.330	0.670	ug/kg	1.0					
Chlordane		9.47	4.13	8.33	ug/kg	1.0					
Dieldrin	U	0.00	0.660	1.33	ug/kg	1.0					
Endosulfan I	U	0.00	0.330	0.670	ug/kg	1.0					
Endosulfan II	U	0.00	0.660	1.33	ug/kg	1.0					
Endosulfan sulfate	U	0.00	0.660	1.33	ug/kg	1.0					
Endrin	U	0.00	0.660	1.33	ug/kg	1.0					
Endrin aldehyde	U	0.00	0.660	1.33	ug/kg	1.0					
Heptachlor	U	0.00	0.330	0.670	ug/kg	1.0					
Heptachlor epoxide	U	0.00	0.330	0.670	ug/kg	1.0					
Methoxychlor	U	0.00	3.30	6.67	ug/kg	1.0					
Toxaphene	U	0.00	16.5	33.0	ug/kg	1.0					
alpha-BHC	U	0.00	0.330	0.670	ug/kg	1.0					
beta-BHC	U	0.00	0.330	0.670	ug/kg	1.0					
delta-BHC	U	0.00	0.330	0.670	ug/kg	1.0					
gamma-BHC	U	0.00	0.330	0.670	ug/kg	1.0					

The following prep procedures were performed:
Pesticides JLS 09/15/97 1200 107881 2

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID : SPORT0511-3

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	P8080	46.4	(45.8 - 148.)
Dibutylchlorendate	P8080	97.8	(30.7 - 143.)

M = Method	Method-Description
M 1	EPA 8080
M 2	EPA 3550

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Reviewed By

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NC	233	
SC	10120	10582
TN	02934	02934

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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID : SPORT0511-4
Lab ID : 9709316-04
Matrix : Soil
Date Collected : 09/12/97
Date Received : 09/15/97
Priority : Urgent
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
Method 8080 - Organochlorine Pesticides - 19 Items											
4,4'-DDD	U	0.00	3.32	6.64	ug/kg	5.0	JLS	09/17/97	1500	107881	1
4,4'-DDE	U	0.00	3.32	6.64	ug/kg	5.0					
4,4'-DDT	U	0.00	3.32	6.64	ug/kg	5.0					
Aldrin	U	0.00	1.66	3.32	ug/kg	5.0					
Chlordane		69.2	20.8	41.5	ug/kg	5.0					
Dieldrin		22.1	3.32	6.64	ug/kg	5.0					
Endosulfan I	U	0.00	1.66	3.32	ug/kg	5.0					
Endosulfan II	U	0.00	3.32	6.64	ug/kg	5.0					
Endosulfan sulfate	U	0.00	3.32	6.64	ug/kg	5.0					
Endrin	U	0.00	3.32	6.64	ug/kg	5.0					
Endrin aldehyde	U	0.00	3.32	6.64	ug/kg	5.0					
Heptachlor	U	0.00	1.66	3.32	ug/kg	5.0					
Heptachlor epoxide		4.53	1.66	3.32	ug/kg	5.0					
Methoxychlor	U	0.00	16.6	33.2	ug/kg	5.0					
Toxaphene	U	0.00	83.0	166	ug/kg	5.0					
alpha-BHC	U	0.00	1.66	3.32	ug/kg	5.0					
beta-BHC	U	0.00	1.66	3.32	ug/kg	5.0					
delta-BHC	U	0.00	1.66	3.32	ug/kg	5.0					
gamma-BHC	U	0.00	1.66	3.32	ug/kg	5.0					

The following prep procedures were performed:
Pesticides JLS 09/15/97 1200 107881 2

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/[illegible]
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID : SPORT0511-4

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	P8080	0.00*	(45.8 - 148.)
Dibutylchlorendate	P8080	0.00*	(30.7 - 143.)

M = Method	Method-Description
M 1	EPA 8080
M 2	EPA 3550

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Karen Blakeney
Reviewed By

GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID	: SPORT0511-5
Lab ID	: 9709316-05
Matrix	: Soil
Date Collected	: 09/12/97
Date Received	: 09/15/97
Priority	: Urgent
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
Method 8080 - Organochlorine Pesticides - 19 Items											
4,4'-DDD		12.8	0.660	1.33	ug/kg	1.0	JLS	09/16/97	0155	107881	1
4,4'-DDE		3.43	0.660	1.33	ug/kg	1.0					
4,4'-DDT	J	57.6	33.0	66.0	ug/kg	50.	JLS	09/17/97	1538	107881	1
Aldrin	U	0.00	0.330	0.670	ug/kg	1.0	JLS	09/16/97	0155	107881	1
Chlordane		88.1	4.13	8.33	ug/kg	1.0					
Dieldrin		10.6	0.660	1.33	ug/kg	1.0					
Endosulfan I	U	0.00	0.330	0.670	ug/kg	1.0					
Endosulfan II	U	0.158	0.660	1.33	ug/kg	1.0					
Endosulfan sulfate	U	0.00	0.660	1.33	ug/kg	1.0					
Endrin		4.72	0.660	1.33	ug/kg	1.0					
Endrin aldehyde	U	0.00	0.660	1.33	ug/kg	1.0					
Heptachlor		0.851	0.330	0.670	ug/kg	1.0					
Heptachlor epoxide		1.38	0.330	0.670	ug/kg	1.0					
Methoxychlor	U	0.00	3.30	6.67	ug/kg	1.0					
Toxaphene	U	0.00	16.5	33.0	ug/kg	1.0					
alpha-BHC	U	0.00	0.330	0.670	ug/kg	1.0					
beta-BHC	U	0.00	0.330	0.670	ug/kg	1.0					
delta-BHC	U	0.00	0.330	0.670	ug/kg	1.0					
gamma-BHC	U	0.00	0.330	0.670	ug/kg	1.0					

The following prep procedures were performed:

Pesticides JLS 09/15/97 1200 107881 2

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID : SPORT0511-5

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	P8080	30.0*	(45.8 - 148.)
Dibutylchlorendate	P8080	96.0	(30.7 - 143.)

M = Method	Method-Description
M 1	EPA 8080
M 2	EPA 3550

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
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FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197

Report Date: September 18, 1997

Sample ID	: SPORT0511-6
Lab ID	: 9709316-06
Matrix	: Soil
Date Collected	: 09/12/97
Date Received	: 09/15/97
Priority	: Urgent
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
Method 8080 - Organochlorine Pesticides - 19 Items											
4,4'-DDD	J	12300	6640	13300	ug/kg	10000	JLS	09/17/97	1616	107881	1
4,4'-DDE	U	0.00	66.4	133	ug/kg	100					
4,4'-DDT		93000	6640	13300	ug/kg	10000					
Aldrin	U	0.00	33.2	66.4	ug/kg	100					
Chlordane		99.9	20.8	41.5	ug/kg	5.0					
Dieldrin		13900	6640	13300	ug/kg	10000					
Endosulfan I	U	0.00	33.2	66.4	ug/kg	100					
Endosulfan II	U	0.00	66.4	133	ug/kg	100					
Endosulfan sulfate	U	0.00	66.4	133	ug/kg	100					
Endrin	U	0.00	66.4	133	ug/kg	100					
Endrin aldehyde	U	0.00	66.4	133	ug/kg	100					
Heptachlor	U	0.00	33.2	66.4	ug/kg	100					
Heptachlor epoxide	U	0.00	33.2	66.4	ug/kg	100					
Methoxychlor	U	0.00	332	664	ug/kg	100					
Toxaphene	U	0.00	1660	3320	ug/kg	100					
alpha-BHC	U	0.00	33.2	66.4	ug/kg	100					
beta-BHC	U	0.00	33.2	66.4	ug/kg	100					
delta-BHC	U	0.00	33.2	66.4	ug/kg	100					
gamma-BHC	U	0.00	33.2	66.4	ug/kg	100					

The following prep procedures were performed:

Pesticides	JLS	09/15/97	1200	107881 2

9709316-06

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID : SPORT0511-6

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	P8080	0.00*	(45.8 - 148.)
Dibutylchlorendate	P8080	0.00*	(30.7 - 143.)

M = Method	Method-Description
M 1	EPA 8080
M 2	EPA 3550

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

Karen Blakeney
Reviewed By

GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID	: SPORT0511-7
Lab ID	: 9709316-07
Matrix	: Soil
Date Collected	: 09/12/97
Date Received	: 09/15/97
Priority	: Urgent
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
Method 8080 - Organochlorine Pesticides - [illegible]											
4,4'-DDD	U	[illegible]	3.32	6.64	ug/kg	5.0	JLS	09/17/97	1730	107881	1
4,4'-DDE	U	0.00	3.32	6.64	ug/kg	5.0					
4,4'-DDT		20.4	3.32	6.64	ug/kg	5.0					
Aldrin	U	0.00	1.66	3.32	ug/kg	5.0					
Chlordane	U	0.00	20.8	41.5	ug/kg	5.0					
Dieldrin	U	0.00	3.32	6.64	ug/kg	5.0					
Endosulfan I	U	0.00	1.66	3.32	ug/kg	5.0					
Endosulfan II	U	0.00	3.32	6.64	ug/kg	5.0					
Endosulfan sulfate	U	0.00	3.32	6.64	ug/kg	5.0					
Endrin	U	0.00	3.32	6.64	ug/kg	5.0					
Endrin aldehyde	U	0.00	3.32	6.64	ug/kg	5.0					
Heptachlor	U	0.00	1.66	3.32	ug/kg	5.0					
Heptachlor epoxide	U	0.00	1.66	3.32	ug/kg	5.0					
Methoxychlor	U	0.00	16.6	33.2	ug/kg	5.0					
Toxaphene	U	0.00	83.0	166	ug/kg	5.0					
alpha-BHC	U	0.00	1.66	3.32	ug/kg	5.0					
beta-BHC	U	0.00	1.66	3.32	ug/kg	5.0					
delta-BHC	U	0.00	1.66	3.32	ug/kg	5.0					
gamma-BHC	U	0.00	1.66	3.32	ug/kg	5.0					

The following prep procedures were performed:
Pesticides JLS 09/15/97 1200 107881 2

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9709316-07

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID : SPORT0511-7

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	P8080	0.00*	(45.8 - 148.)
Dibutylchlorendate	P8080	0.00*	(30.7 - 143.)

M = Method	Method-Description
M 1	EPA 8080
M 2	EPA 3550

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

Karen Blakeney
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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/874
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197

Report Date: September 18, 1997

Sample ID	: SPORT0511-8
Lab ID	: 9709316-08
Matrix	: Soil
Date Collected	: 09/12/97
Date Received	: 09/15/97
Priority	: Urgent
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
Method 8080 - Organochlorine Pesticides - 19 items											
4,4'-DDD		1500	165	330	ug/kg	250	JLS	09/17/97	1312	107881	1
4,4'-DDE	J	215	165	330	ug/kg	250					
4,4'-DDT		15400	3300	6600	ug/kg	5000					
Aldrin	U	0.00	82.5	165	ug/kg	250					
Chlordane		342	20.6	41.3	ug/kg	5.0	JLS	09/16/97	0916	107881	1
Dieldrin	U	0.00	3300	6600	ug/kg	5000	JLS	09/17/97	1312	107881	1
Endosulfan I	U	0.00	82.5	165	ug/kg	250					
Endosulfan II	U	0.00	165	330	ug/kg	250					
Endosulfan sulfate	U	0.00	165	330	ug/kg	250					
Endrin	U	0.00	165	330	ug/kg	250					
Endrin aldehyde	U	0.00	165	330	ug/kg	250					
Heptachlor	U	0.00	82.5	165	ug/kg	250					
Heptachlor epoxide	U	0.00	82.5	165	ug/kg	250					
Methoxychlor	U	0.00	825	1650	ug/kg	250					
Toxaphene	U	0.00	4130	8250	ug/kg	250					
alpha-BHC	U	0.00	82.5	165	ug/kg	250					
beta-BHC	U	0.00	82.5	165	ug/kg	250					
delta-BHC	U	0.00	82.5	165	ug/kg	250					
gamma-BHC	U	0.00	82.5	165	ug/kg	250					

The following prep procedures were performed:

Pesticides	JLS	09/15/97	1200	107881 2

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9709316-08

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/874
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID : SPORT0511-8

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	P8080	0.00*	(45.8 - 148.)
Dibutylchlorendate	P8080	0.00*	(30.7 - 143.)

M = Method	Method-Description
M 1	EPA 8080
M 2	EPA 3550

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

Karen Blakeney
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9709316-08

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/8745
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197

Report Date: September 18, 1997

Sample ID	: SPORT0511-9
Lab ID	: 9709316-09
Matrix	: Soil
Date Collected	: 09/12/97
Date Received	: 09/15/97
Priority	: Urgent
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
Method 8080 - Organochlorine Pesticides - 18 Items											
4,4'-DDD		4.65	1.33	2.66	ug/kg	2.0	JLS	09/17/97	1350	107881	1
4,4'-DDE	U	0.00	1.33	2.66	ug/kg	2.0					
4,4'-DDT		3.44	1.33	2.66	ug/kg	2.0					
Aldrin	U	0.00	0.664	1.33	ug/kg	2.0					
Chlordane	J	12.1	8.30	16.6	ug/kg	2.0					
Dieldrin		3.31	1.33	2.66	ug/kg	2.0					
Endosulfan I	U	0.00	0.664	1.33	ug/kg	2.0					
Endosulfan II	U	0.00	1.33	2.66	ug/kg	2.0					
Endosulfan sulfate	U	0.00	1.33	2.66	ug/kg	2.0					
Endrin	U	0.00	1.33	2.66	ug/kg	2.0					
Endrin aldehyde	U	0.00	1.33	2.66	ug/kg	2.0					
Heptachlor	U	0.00	0.664	1.33	ug/kg	2.0					
Heptachlor epoxide	U	0.00	0.664	1.33	ug/kg	2.0					
Methoxychlor	U	0.00	6.64	13.3	ug/kg	2.0					
Toxaphene	U	0.00	33.2	66.4	ug/kg	2.0					
alpha-BHC	U	0.00	0.664	1.33	ug/kg	2.0					
beta-BHC	U	0.00	0.664	1.33	ug/kg	2.0					
delta-BHC	U	0.00	0.664	1.33	ug/kg	2.0					
gamma-BHC	U	0.00	0.664	1.33	ug/kg	2.0					

The following prep procedures were performed:

Pesticides	JLS	09/15/97	1200	107881	2

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9709316-09

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STATE	GEL	EPI
FL	E87156/87294	E87472/8[illegible]
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID : SPORT0511-9

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	P8080	44.7*	(45.8 - 148.)
Dibutylchlorendate	P8080	78.1	(30.7 - 143.)

M = Method	Method-Description
M1	EPA 8080
M2	EPA 3550

Notes:
The qualifiers in this report are defined as follows:
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J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

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Karen Blakeney
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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID	: SPORT0511-10
Lab ID	: 9709316-10
Matrix	: Soil
Date Collected	: 09/12/97
Date Received	: 09/15/97
Priority	: Urgent
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
Method 8080 - Organochlorine Pesticides - 19 items											
4,4'-DDD	U	0.00	1.32	2.63	ug/kg	2.0	JLS	09/17/97	1428	107881	1
4,4'-DDE	U	0.00	1.32	2.63	ug/kg	2.0					
4,4'-DDT	U	0.00	1.32	2.63	ug/kg	2.0					
Aldrin	U	0.00	0.658	1.32	ug/kg	2.0					
Chlordane	U	0.00	8.23	16.5	ug/kg	2.0					
Dieldrin		3.09	1.32	2.63	ug/kg	2.0					
Endosulfan I	U	0.00	0.658	1.32	ug/kg	2.0					
Endosulfan II	U	0.00	1.32	2.63	ug/kg	2.0					
Endosulfan sulfate	U	0.00	1.32	2.63	ug/kg	2.0					
Endrin	U	0.00	1.32	2.63	ug/kg	2.0					
Endrin aldehyde	U	0.00	1.32	2.63	ug/kg	2.0					
Heptachlor	U	0.00	0.658	1.32	ug/kg	2.0					
Heptachlor epoxide	U	0.00	0.658	1.32	ug/kg	2.0					
Methoxychlor	U	0.00	6.58	13.2	ug/kg	2.0					
Toxaphene	U	0.00	32.9	65.8	ug/kg	2.0					
alpha-BHC	U	0.00	0.658	1.32	ug/kg	2.0					
beta-BHC	U	0.00	0.658	1.32	ug/kg	2.0					
delta-BHC	U	0.00	0.658	1.32	ug/kg	2.0					
gamma-BHC	U	0.00	0.658	1.32	ug/kg	2.0					

The following prep procedures were performed:

Pesticides JLS 09/15/97 1200 107881 2

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9709316-10

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID : SPORT0511-10

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	P8080	45.9	(45.8 - 148.)
Dibutylchlorendate	P8080	85.7	(30.7 - 143.)

M = Method	Method-Description
M 1	EPA 8080
M 2	EPA 3550

Notes:
The qualifiers in this report are defined as follows:
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J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

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Karen Blakeney
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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87451
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID	: SPORT0511-11
Lab ID	: 9709316-11
Matrix	: Soil
Date Collected	: 09/12/97
Date Received	: 09/15/97
Priority	: Urgent
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
Method 8080 - Organochlorine Pesticides - 19 items											
4,4'-DDD		20.3	3.32	6.64	ug/kg	5.0	JLS	09/17/97	1506	107881	1
4,4'-DDE	U	0.00	3.32	6.64	ug/kg	5.0					
4,4'-DDT		10.3	3.32	6.64	ug/kg	5.0					
Aldrin	U	0.00	1.66	3.32	ug/kg	5.0					
Chlordane		69.6	20.8	41.5	ug/kg	5.0					
Dieldrin		56.1	3.32	6.64	ug/kg	5.0					
Endosulfan I	U	0.00	1.66	3.32	ug/kg	5.0					
Endosulfan II	U	0.00	3.32	6.64	ug/kg	5.0					
Endosulfan sulfate	U	0.00	3.32	6.64	ug/kg	5.0					
Endrin	U	0.00	3.32	6.64	ug/kg	5.0					
Endrin aldehyde	U	0.00	3.32	6.64	ug/kg	5.0					
Heptachlor	U	0.00	1.66	3.32	ug/kg	5.0					
Heptachlor epoxide	U	0.00	1.66	3.32	ug/kg	5.0					
Methoxychlor	U	0.00	16.6	33.2	ug/kg	5.0					
Toxaphene	U	0.00	83.0	166	ug/kg	5.0					
alpha-BHC	U	0.00	1.66	3.32	ug/kg	5.0					
beta-BHC	U	0.00	1.66	3.32	ug/kg	5.0					
delta-BHC	U	0.00	1.66	3.32	ug/kg	5.0					
gamma-BHC	U	0.00	1.66	3.32	ug/kg	5.0					

The following prep procedures were performed:

Pesticides	JLS	09/15/97	1200	107881	2

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/8
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID : SPORT0511-11

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	P8080	0.00*	(45.8 - 148.)
Dibutylchlorendate	P8080	0.00*	(30.7 - 143.)

M = Method	Method-Description
M 1	EPA 8080
M 2	EPA 3550

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

Karen Blakeney
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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87451
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID : SPORT0511-12
Lab ID : 9709316-12
Matrix : Soil
Date Collected : 09/12/97
Date Received : 09/15/97
Priority : Urgent
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
Method 8080 - Organochlorine Pesticides - 19 items											
4,4'-DDD	J	7.33	6.66	13.3	ug/kg	10.	JLS	09/17/97	1545	107881	1
4,4'-DDE		54.3	6.66	13.3	ug/kg	10.					
4,4'-DDT		88.2	6.66	13.3	ug/kg	10.					
Aldrin	U	0.00	3.33	6.66	ug/kg	10.					
Chlordane		60.1	20.8	41.6	ug/kg	5.0					
Dieldrin		18.4	6.66	13.3	ug/kg	10.					
Endosulfan I	U	0.00	3.33	6.66	ug/kg	10.					
Endosulfan II	U	0.00	6.66	13.3	ug/kg	10.					
Endosulfan sulfate	U	0.00	6.66	13.3	ug/kg	10.					
Endrin	U	0.00	6.66	13.3	ug/kg	10.					
Endrin aldehyde	U	0.00	6.66	13.3	ug/kg	10.					
Heptachlor	U	0.00	3.33	6.66	ug/kg	10.					
Heptachlor epoxide	U	0.00	3.33	6.66	ug/kg	10.					
Methoxychlor	U	0.00	33.3	66.6	ug/kg	10.					
Toxaphene	U	0.00	167	333	ug/kg	10.					
alpha-BHC	U	0.00	3.33	6.66	ug/kg	10.					
beta-BHC	U	0.00	3.33	6.66	ug/kg	10.					
delta-BHC	U	0.00	3.33	6.66	ug/kg	10.					
gamma-BHC	U	0.00	3.33	6.66	ug/kg	10.					

The following prep procedures were performed:

Pesticides	JLS	09/15/97	1200	107881 2

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID : SPORT0511-12

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	P8080	0.00*	(45.8 - 148.)
Dibutylchlorendate	P8080	0.00*	(30.7 - 143.)

M = Method	Method-Description
M 1	EPA 8080
M 2	EPA 3550

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

Karen Blakeney
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GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197

Report Date: September 18, 1997

Sample ID	: SPORT0511-13
Lab ID	: 9709316-13
Matrix	: Soil
Date Collected	: 09/12/97
Date Received	: 09/15/97
Priority	: Urgent
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
Method 8080 - Organochlorine Pesticides - 19 items											
4,4'-DDD	U	0.00	3.33	6.66	ug/kg	5.0	JLS	09/17/97	1701	107881	1
4,4'-DDE	U	0.00	1.33	2.66	ug/kg	2.0					
4,4'-DDT		14.5	1.33	2.66	ug/kg	2.0					
Aldrin	U	0.00	0.666	1.33	ug/kg	2.0					
Chlordane	U	0.00	8.33	16.7	ug/kg	2.0					
Dieldrin	U	0.00	1.33	2.66	ug/kg	2.0					
Endosulfan I	U	0.00	0.666	1.33	ug/kg	2.0					
Endosulfan II	U	0.00	1.33	2.66	ug/kg	2.0					
Endosulfan sulfate	U	0.00	1.33	2.66	ug/kg	2.0					
Endrin	U	0.00	1.33	2.66	ug/kg	2.0					
Endrin aldehyde	U	0.00	1.33	2.66	ug/kg	2.0					
Heptachlor	U	0.00	0.666	1.33	ug/kg	2.0					
Heptachlor epoxide	U	0.00	0.666	1.33	ug/kg	2.0					
Methoxychlor	U	0.00	6.66	13.3	ug/kg	2.0					
Toxaphene	U	0.00	33.3	66.6	ug/kg	2.0					
alpha-BHC	U	0.00	0.666	1.33	ug/kg	2.0					
beta-BHC	U	0.00	0.666	1.33	ug/kg	2.0					
delta-BHC	U	0.00	0.666	1.33	ug/kg	2.0					
gamma-BHC	U	0.00	0.666	1.33	ug/kg	2.0					

The following prep procedures were performed:

Pesticides	JLS	09/15/97	1200	107881 2

9709316-13

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STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID : SPORT0511-13

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	P8080	74.7	(45.8 - 148.)
Dibutylchlorendate	P8080	117.	(30.7 - 143.)

M = Method	Method-Description
M 1	EPA 8080
M 2	EPA 3550

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

Karen Blakeney
Reviewed By

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	223	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID : SPORT0511-14
Lab ID : 9709316-14
Matrix : Soil
Date Collected : 09/12/97
Date Received : 09/15/97
Priority : Urgent
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
Method 8080 - Organochlorine Pesticides - 19 items											
4,4'-DDD	U	0.00	66.6	133	ug/kg	100	JLS	09/17/97	1739	107881	1
4,4'-DDE	U	0.00	66.6	133	ug/kg	100					
4,4'-DDT	U	0.00	66.6	133	ug/kg	100					
Aldrin	U	0.00	33.3	66.6	ug/kg	100					
Chlordane	U	0.00	416	833	ug/kg	100					
Dieldrin		526	66.6	133	ug/kg	100					
Endosulfan I	U	0.00	33.3	66.6	ug/kg	100					
Endosulfan II	U	0.00	66.6	133	ug/kg	100					
Endosulfan sulfate	U	0.00	66.6	133	ug/kg	100					
Endrin	U	0.00	66.6	133	ug/kg	100					
Endrin aldehyde	U	0.00	66.6	133	ug/kg	100					
Heptachlor	U	0.00	33.3	66.6	ug/kg	100					
Heptachlor epoxide	U	0.00	33.3	66.6	ug/kg	100					
Methoxychlor	U	0.00	333	666	ug/kg	100					
Toxaphene	U	0.00	1670	3330	ug/kg	100					
alpha-BHC	U	0.00	33.3	66.6	ug/kg	100					
beta-BHC	U	0.00	33.3	66.6	ug/kg	100					
delta-BHC	U	0.00	33.3	66.6	ug/kg	100					
gamma-BHC	U	0.00	33.3	66.6	ug/kg	100					

The following prep procedures were performed:

Pesticides	JLS	09/15/97	1200	107881 2

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID : SPORT0511-14

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	P8080	0.00*	(45.8 - 148.)
Dibutylchlorendate	P8080	0.00*	(30.7 - 143.)

M = Method	Method-Description
M 1	EPA 8080
M 2	EPA 3550

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

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Karen Blakeney
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STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197

Report Date: September 18, 1997

Sample ID : SPORT0511-15
Lab ID : 9709316-15
Matrix : Soil
Date Collected : 09/12/97
Date Received : 09/15/97
Priority : Urgent
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
Method 8080 - Organochlorine Pesticides - 19 items											
4,4'-DDD	U	0.00	3.32	6.64	ug/kg	5.0	JLS	09/17/97	1817	107881	1
4,4'-DDE		22.6	3.32	6.64	ug/kg	5.0					
4,4'-DDT		20.6	3.32	6.64	ug/kg	5.0					
Aldrin	U	0.00	1.66	3.32	ug/kg	5.0					
Chlordane	U	3.05	4.15	8.33	ug/kg	1.0					
Dieldrin		20.9	3.32	6.64	ug/kg	5.0					
Endosulfan I	U	0.00	1.66	3.32	ug/kg	5.0					
Endosulfan II	U	0.00	3.32	6.64	ug/kg	5.0					
Endosulfan sulfate	U	0.00	3.32	6.64	ug/kg	5.0					
Endrin	U	0.00	3.32	6.64	ug/kg	5.0					
Endrin aldehyde	U	0.00	3.32	6.64	ug/kg	5.0					
Heptachlor	U	0.00	1.66	3.32	ug/kg	5.0					
Heptachlor epoxide	U	0.00	1.66	3.32	ug/kg	5.0					
Methoxychlor	U	0.00	16.6	33.2	ug/kg	5.0					
Toxaphene	U	0.00	83.0	166	ug/kg	5.0					
alpha-BHC	U	0.00	1.66	3.32	ug/kg	5.0					
beta-BHC	U	0.00	1.66	3.32	ug/kg	5.0					
delta-BHC	U	0.00	1.66	3.32	ug/kg	5.0					
gamma-BHC	U	0.00	1.66	3.32	ug/kg	5.0					

The following prep procedures were performed:

Pesticides	JLS	09/15/97	1200	107881 2

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STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID : SPORT0511-15

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	P8080	0.00*	(45.8 - 148.)
Dibutylchlorendate	P8080	0.00*	(30.7 - 143.)

M = Method	Method-Description
M 1	EPA 8080
M 2	EPA 3550

Notes:
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* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

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Karen Blakeney
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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197

Report Date: September 18, 1997

Sample ID : SPORT0511-16
Lab ID : 9709316-16
Matrix : Soil
Date Collected : 09/12/97
Date Received : 09/15/97
Priority : Urgent
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
Method 8080 - Organochlorine Pesticides - 19 items											
4,4'-DDD	U	0.00	3.32	6.64	ug/kg	5.0	JLS	09/17/97	1855	107881	1
4,4'-DDE	U	0.00	3.32	6.64	ug/kg	5.0					
4,4'-DDT	U	0.00	3.32	6.64	ug/kg	5.0					
Aldrin	U	0.00	1.66	3.32	ug/kg	5.0					
Chlordane	U	0.00	20.8	41.5	ug/kg	5.0					
Dieldrin	U	0.00	3.32	6.64	ug/kg	5.0					
Endosulfan I	U	0.00	1.66	3.32	ug/kg	5.0					
Endosulfan II	U	0.00	3.32	6.64	ug/kg	5.0					
Endosulfan sulfate	U	0.00	3.32	6.64	ug/kg	5.0					
Endrin	U	0.00	3.32	6.64	ug/kg	5.0					
Endrin aldehyde	U	0.00	3.32	6.64	ug/kg	5.0					
Heptachlor	U	0.00	1.66	3.32	ug/kg	5.0					
Heptachlor epoxide	U	0.00	1.66	3.32	ug/kg	5.0					
Methoxychlor	U	0.00	16.6	33.2	ug/kg	5.0					
Toxaphene	U	0.00	83.0	166	ug/kg	5.0					
alpha-BHC	U	0.00	1.66	3.32	ug/kg	5.0					
beta-BHC	U	0.00	1.66	3.32	ug/kg	5.0					
delta-BHC	U	0.00	1.66	3.32	ug/kg	5.0					
gamma-BHC	U	0.00	1.66	3.32	ug/kg	5.0					

The following prep procedures were performed:

Pesticides	JLS	09/15/97	1200	107881	2

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STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID : SPORT0511-16

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	P8080	25.2*	(45.8 - 148.)
Dibutylchlorendate	P8080	112.	(30.7 - 143.)

M = Method	Method-Description
M 1	EPA 8080
M 2	EPA 3550

Notes:
The qualifiers in this report are defined as follows:
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J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

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Karen Blakeney
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STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197

Report Date: September 18, 1997

Sample ID	: SPORT0511-17
Lab ID	: 9709316-17
Matrix	: Soil
Date Collected	: 09/12/97
Date Received	: 09/15/97
Priority	: Urgent
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
Method 8080 - Organochlorine Pesticides - 19 Items											
4,4'-DDD	U	0.00	0.666	1.33	ug/kg	1.0	JLS	09/17/97	1807	107881	1
4,4'-DDE	U	0.00	0.666	1.33	ug/kg	1.0					
4,4'-DDT	U	0.00	0.666	1.33	ug/kg	1.0					
Aldrin	U	0.00	0.333	0.670	ug/kg	1.0					
Chlordane	J	6.29	4.16	8.33	ug/kg	1.0					
Dieldrin	U	0.00	0.666	1.33	ug/kg	1.0					
Endosulfan I	U	0.00	0.333	0.670	ug/kg	1.0					
Endosulfan II	U	0.00	0.666	1.33	ug/kg	1.0					
Endosulfan sulfate	U	0.00	0.666	1.33	ug/kg	1.0					
Endrin	U	0.00	0.666	1.33	ug/kg	1.0					
Endrin aldehyde	U	0.00	0.666	1.33	ug/kg	1.0					
Heptachlor	U	0.00	0.333	0.670	ug/kg	1.0					
Heptachlor epoxide	U	0.00	0.333	0.670	ug/kg	1.0					
Methoxychlor	U	0.00	3.33	6.67	ug/kg	1.0					
Toxaphene	U	0.00	16.7	33.3	ug/kg	1.0					
alpha-BHC	U	0.00	0.333	0.670	ug/kg	1.0					
beta-BHC	U	0.00	0.333	0.670	ug/kg	1.0					
delta-BHC	U	0.00	0.333	0.670	ug/kg	1.0					
gamma-BHC	U	0.00	0.333	0.670	ug/kg	1.0					

The following prep procedures were performed:

Pesticides	JLS	09/15/97	1200	107881 2

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E8747[illegible]
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID : SPORT0511-17

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	P8080	72.1	(45.8 - 148.)
Dibutylchlorendate	P8080	121.	(30.7 - 143.)

M = Method	Method-Description
M 1	EPA 8080
M 2	EPA 3550

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

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Karen Blakeney
Reviewed By

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID	: SPORT0511-18
Lab ID	: 9709316-18
Matrix	: Soil
Date Collected	: 09/12/97
Date Received	: 09/15/97
Priority	: Urgent
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
Method 8080 - Organochlorine Pesticides - 19 items											
4,4'-DDD	U	0.00	1.33	2.66	ug/kg	2.0	JLS	09/17/97	1845	107881	1
4,4'-DDE	U	0.00	1.33	2.66	ug/kg	2.0					
4,4'-DDT	U	0.00	1.33	2.66	ug/kg	2.0					
Aldrin	U	0.00	0.664	1.33	ug/kg	2.0					
Chlordane	J	15.7	8.30	16.6	ug/kg	2.0					
Dieldrin	U	0.00	1.33	2.66	ug/kg	2.0					
Endosulfan I	U	0.00	0.664	1.33	ug/kg	2.0					
Endosulfan II	U	0.00	1.33	2.66	ug/kg	2.0					
Endosulfan sulfate	U	0.00	1.33	2.66	ug/kg	2.0					
Endrin	U	0.00	1.33	2.66	ug/kg	2.0					
Endrin aldehyde	U	0.00	1.33	2.66	ug/kg	2.0					
Heptachlor	U	0.00	0.664	1.33	ug/kg	2.0					
Heptachlor epoxide	U	0.00	0.664	1.33	ug/kg	2.0					
Methoxychlor	U	0.00	6.64	13.3	ug/kg	2.0					
Toxaphene	U	0.00	33.2	66.4	ug/kg	2.0					
alpha-BHC	U	0.00	0.664	1.33	ug/kg	2.0					
beta-BHC	U	0.00	0.664	1.33	ug/kg	2.0					
delta-BHC	U	0.00	0.664	1.33	ug/kg	2.0					
gamma-BHC	U	0.00	0.664	1.33	ug/kg	2.0					

The following prep procedures were performed:

Pesticides	JLS	09/15/97	1200	107881 2

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9709316-18

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E874[illegible]
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 18, 1997

Sample ID : SPORT0511-18

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	P8080	16.9*	(45.8 - 148.)
Dibutylchlorendate	P8080	82.6	(30.7 - 143.)

M = Method	Method-Description
M 1	EPA 8080
M 2	EPA 3550

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

Karen Blakeney
Reviewed By

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9709316-18

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02924

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: October 08, 1997

Sample ID : SPORT0513-4
Lab ID : 9709676-03
Matrix : Soil
Date Collected : 09/20/97
Date Received : 09/30/97
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
Method 8080 - Organochlorine Pesticides - 19 items											
4,4'-DDD	J	8.03	6.50	13.0	ug/kg	10.	JLS	10/02/97	0212	108610	1
4,4'-DDE	U	2.17	6.50	13.0	ug/kg	10.					
4,4'-DDT	U	0.00	6.50	13.0	ug/kg	10.					
Aldrin	J	5.36	3.25	6.50	ug/kg	10.					
Chlordane	U	0.00	40.6	81.3	ug/kg	10.					
Dieldrin	J	8.09	6.50	13.0	ug/kg	10.					
Endosulfan I	U	0.00	3.25	6.50	ug/kg	10.					
Endosulfan II	U	0.00	6.50	13.0	ug/kg	10.					
Endosulfan sulfate	U	0.00	6.50	13.0	ug/kg	10.					
Endrin	U	0.00	6.50	13.0	ug/kg	10.					
Endrin aldehyde	U	0.00	6.50	13.0	ug/kg	10.					
Heptachlor	U	0.00	3.25	6.50	ug/kg	10.					
Heptachlor epoxide	U	0.00	3.25	6.50	ug/kg	10.					
Methoxychlor	U	0.00	32.5	65.0	ug/kg	10.					
Toxaphene	U	0.00	163	325	ug/kg	10.					
alpha-BHC	U	0.00	3.25	6.50	ug/kg	10.					
beta-BHC	U	0.00	3.25	6.50	ug/kg	10.					
delta-BHC	U	0.00	3.25	6.50	ug/kg	10.					
gamma-BHC	J	3.93	3.25	6.50	ug/kg	10.					

The following prep procedures were performed:
Pesticides HDB 10/01/97 1630 108610 2

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GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: October 08, 1997

Sample ID : SPORT0513-4

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	P8080	0.00*	(45.8 - 148.)
Dibutylchlorendate	P8080	0.00*	(30.7 - 143.)

M = Method	Method-Description
M 1	EPA 8080
2	EPA 3550

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed
in accordance with General Engineering Laboratories
standard operating procedures. Please direct
any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

Karen Blakeney
Reviewed By

APPENDIX D

SAMPLE DATA
FILL DIRT

GENERAL ENGINEERING LABORATORIES

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 09, 1997

Sample ID : SPORT0508-1
Lab ID : 9709148-01
Matrix : Soil
Date Collected : 09/06/97
Date Received : 09/08/97
Priority : Urgent
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Volatile Organics											
Appendix IX Volatiles - 55 items											
..1,1,2-Tetrachloroethane	U	0.00	1.00	2.00	ug/kg	1.0	RMB	09/08/97	1205	107548	1
1,1,1-Trichloroethane	U	0.00	1.00	2.00	ug/kg	1.0					
1,1,2,2-Tetrachloroethane	U	0.00	1.00	2.00	ug/kg	1.0					
1,1,2-Trichloroethane	U	0.00	1.00	2.00	ug/kg	1.0					
1,1-Dichloroethane	U	0.00	1.00	2.00	ug/kg	1.0					
1,1-Dichloroethylene	U	0.00	1.00	2.00	ug/kg	1.0					
1,2,3-Trichloropropane	U	0.00	1.00	2.00	ug/kg	1.0					
1,2-Dibromo-3-chloropropane	U	0.00	1.00	2.00	ug/kg	1.0					
1,2-Dibromoethane	U	0.00	1.00	2.00	ug/kg	1.0					
1,2-Dichlorobenzene	U	0.00	1.00	2.00	ug/kg	1.0					
1,2-Dichloroethane	U	0.00	1.00	2.00	ug/kg	1.0					
1,2-Dichloropropane	U	0.00	1.00	2.00	ug/kg	1.0					
1,2-cis-Dichloroethylene	U	0.00	1.00	2.00	ug/kg	1.0					
1,2-trans-Dichloroethylene	U	0.00	1.00	2.00	ug/kg	1.0					
2-Butanone	U	0.00	2.00	10.0	ug/kg	1.0					
2-Hexanone	U	0.00	5.00	10.0	ug/kg	1.0					
4-Methyl-2-pentanone	U	0.00	5.00	10.0	ug/kg	1.0					
Acetone	U	0.00	5.00	10.0	ug/kg	1.0					
Acetonitrile	U	0.00	2.00	10.0	ug/kg	1.0					
Acrolein	U	0.00	10.0	20.0	ug/kg	1.0					
Acrylonitrile	U	0.00	5.00	50.0	ug/kg	1.0					
Allyl Chloride	U	0.00	5.00	10.0	ug/kg	1.0					
Benzene	U	0.00	1.00	2.00	ug/kg	1.0					
Bromoform	U	0.00	1.00	2.00	ug/kg	1.0					
Carbon Disulfide	U	0.00	2.00	10.0	ug/kg	1.0					
Carbon Tetrachloride	U	0.00	1.00	2.00	ug/kg	1.0					
Chlorobenzene	U	0.00	1.00	2.00	ug/kg	1.0					

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 09, 1997

Sample ID : SPORT0508-1

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Chlorodibromomethane	U	0.00	1.00	2.00	ug/kg	1.0					
Chloroethane	U	0.00	1.00	2.00	ug/kg	1.0	RMB	09/08/97	1205	107548	1
Chloroform	U	0.00	1.00	2.00	ug/kg	1.0					
Chloroprene	U	0.00	2.00	10.0	ug/kg	1.0					
Dibromomethane	U	0.00	1.00	2.00	ug/kg	1.0					
Dichlorobromomethane	U	0.00	1.00	2.00	ug/kg	1.0					
Dichlorodifluoromethane	U	0.00	1.00	2.00	ug/kg	1.0					
Ethylbenzene	U	0.00	1.00	2.00	ug/kg	1.0					
sobutyl Alcohol	U	0.00	10.0	20.0	ug/kg	1.0					
Methacrylonitrile	U	0.00	5.00	10.0	ug/kg	1.0					
Methyl Bromide	U	0.00	1.00	2.00	ug/kg	1.0					
Methyl Chloride	U	0.00	1.00	2.00	ug/kg	1.0					
Methyl Iodide	U	0.00	2.00	5.00	ug/kg	1.0					
Methyl Methacrylate	U	0.00	2.00	10.0	ug/kg	1.0					
Methylene Chloride	U	0.00	1.00	5.00	ug/kg	1.0					
Propionitrile	U	0.00	10.0	20.0	ug/kg	1.0					
Styrene	U	0.00	1.00	2.00	ug/kg	1.0					
Tetrachloroethylene	U	0.00	1.00	2.00	ug/kg	1.0					
Toluene	U	0.00	1.00	2.00	ug/kg	1.0					
Trichloroethylene	U	0.00	1.00	2.00	ug/kg	1.0					
Trichlorofluoromethane	U	0.00	1.00	2.00	ug/kg	1.0					
Vinyl Acetate	U	0.00	5.00	10.0	ug/kg	1.0					
Vinyl chloride	U	0.00	1.00	2.00	ug/kg	1.0					
Xylenes (TOTAL)	U	0.00	1.00	4.00	ug/kg	1.0					
bis(2-Chloromethylethyl)ether	U	0.00	10.0	20.0	ug/kg	1.0					
cis-1,3-Dichloropropylene	U	0.00	1.00	2.00	ug/kg	1.0					
trans-1,3-Dichloropropylene	U	0.00	1.00	2.00	ug/kg	1.0					
trans-1,4-Dichloro-2-butene	U	0.00	1.00	2.00	ug/kg	1.0					
Extractable Organics											
Appendix IX Acid Compounds - 18 items											
2,3,4,6-Tetrachlorophenol	U	0.00	163	330	ug/kg	1.0	JCB	09/08/97	1724	107546	2
2,4,5-Trichlorophenol	U	0.00	163	330	ug/kg	1.0					
4,6-Trichlorophenol	U	0.00	163	330	ug/kg	1.0					
4-Dichlorophenol	U	0.00	163	330	ug/kg	1.0					
4-Dimethylphenol	U	0.00	163	330	ug/kg	1.0					

Sample ID : SPORT0508-1

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
2,4-Dinitrophenol	U	0.00	325	660	ug/kg	1.0					
2,6-Dichlorophenol	U	0.00	163	330	ug/kg	1.0	JCB	09/08/97	1724	107546	2
2-Chlorophenol	U	0.00	163	330	ug/kg	1.0					
2-Nitrophenol	U	0.00	163	330	ug/kg	1.0					
2-methyl-4,6-dinitrophenol	U	0.00	163	330	ug/kg	1.0					
2-sec-Butyl-4,6-Dinitrophenol	U	0.00	163	330	ug/kg	1.0					
4-Nitrophenol	U	0.00	163	330	ug/kg	1.0					
4-chloro-3-methyl phenol	U	0.00	163	330	ug/kg	1.0					
Hexachlorophene	U	0.00	8130	16500	ug/kg	1.0					
Pentachlorophenol	U	0.00	163	330	ug/kg	1.0					
Phenol	U	0.00	163	330	ug/kg	1.0					
m,p-Cresol	U	0.00	163	330	ug/kg	1.0					
o-Cresol	U	0.00	163	330	ug/kg	1.0					
Appendix IX Base/Neutral Compounds - 102 Items											
1,2,4,5-Tetrachlorobenzene	U	0.00	163	330	ug/kg	1.0					
1,2,4-Trichlorobenzene	U	0.00	163	330	ug/kg	1.0					
1,2-Dichlorobenzene	U	0.00	163	330	ug/kg	1.0					
1,3-Dichlorobenzene	U	0.00	163	330	ug/kg	1.0					
1,4-Dichlorobenzene	U	0.00	163	330	ug/kg	1.0					
1,4-Dioxane	U	0.00	163	330	ug/kg	1.0					
1,4-Naphthoquinone	U	0.00	163	330	ug/kg	1.0					
1-Naphthylamine	U	0.00	163	330	ug/kg	1.0					
2,4-Dinitrotoluene	U	0.00	163	330	ug/kg	1.0					
2,6-Dinitrotoluene	U	0.00	163	330	ug/kg	1.0					
2-Acetylaminofluorene	U	0.00	163	330	ug/kg	1.0					
2-Chloronaphthalene	U	0.00	163	330	ug/kg	1.0					
2-Methylnaphthalene	U	0.00	163	330	ug/kg	1.0					
2-Naphthylamine	U	0.00	163	330	ug/kg	1.0					
2-Picoline	U	0.00	163	330	ug/kg	1.0					
3,3'-Dichlorobenzidine	U	0.00	813	1650	ug/kg	1.0					
3,3'-Dimethylbenzidine	U	0.00	813	1650	ug/kg	1.0					
3-Methylcholanthrene	U	0.00	163	330	ug/kg	1.0					
4-Bromophenyl phenyl ether	U	0.00	163	330	ug/kg	1.0					
4-Chloroaniline	U	0.00	163	330	ug/kg	1.0					
4-Chlorophenyl phenyl ether	U	0.00	163	330	ug/kg	1.0					

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 09, 1997

Sample ID : SPORT0508-1

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
4-aminobiphenyl	U	0.00	163	330	ug/kg	1.0					
5-Nitro-o-toluidine	U	0.00	163	330	ug/kg	1.0	JCB	09/08/97	1724	107546	2
7,12-Dimethylbenz(a)anthracene	U	0.00	163	330	ug/kg	1.0					
Acenaphthene	U	0.00	163	330	ug/kg	1.0					
Acenaphthylene	U	0.00	163	330	ug/kg	1.0					
Acetophenone	U	0.00	163	330	ug/kg	1.0					
Aniline	U	0.00	163	330	ug/kg	1.0					
Anthracene	U	0.00	163	330	ug/kg	1.0					
Aramite	U	0.00	163	330	ug/kg	1.0					
Benzo(a)anthracene	U	0.00	163	330	ug/kg	1.0					
Benzo(a)pyrene	U	0.00	163	330	ug/kg	1.0					
Benzo(b)fluoranthene	U	0.00	163	330	ug/kg	1.0					
Benzo(ghi)perylene	U	0.00	163	330	ug/kg	1.0					
Benzo(k)fluoranthene	U	0.00	163	330	ug/kg	1.0					
Benzyl Alcohol	U	0.00	163	330	ug/kg	1.0					
Butyl benzyl phthalate	U	0.00	163	330	ug/kg	1.0					
Chlorobenzilate	U	0.00	813	1650	ug/kg	1.0					
Chrysene	U	0.00	163	330	ug/kg	1.0					
Di-n-butyl phthalate	U	0.00	163	330	ug/kg	1.0					
Di-n-octyl phthalate	U	0.00	163	330	ug/kg	1.0					
Diallate	U	0.00	163	330	ug/kg	1.0					
Dibenzo(a,h)anthracene	U	0.00	163	330	ug/kg	1.0					
Dibenzofuran	U	0.00	163	330	ug/kg	1.0					
Diethyl phthalate	U	0.00	163	330	ug/kg	1.0					
Dimethoate	U	0.00	813	1650	ug/kg	1.0					
Dimethyl phthalate	U	0.00	163	330	ug/kg	1.0					
Diphenylamine	U	0.00	163	330	ug/kg	1.0					
Disulfoton	U	0.00	163	330	ug/kg	1.0					
Ethyl Methanesulfonate	U	0.00	163	330	ug/kg	1.0					
Ethyl methacrylate	U	0.00	163	330	ug/kg	1.0					
Famphur	U	0.00	163	330	ug/kg	1.0					
Fluoranthene	U	0.00	163	330	ug/kg	1.0					
Fluorene	U	0.00	163	330	ug/kg	1.0					
Hexachlorobenzene	U	0.00	163	330	ug/kg	1.0					
Hexachlorobutadiene	U	0.00	163	330	ug/kg	1.0					

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
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Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 09, 1997

Sample ID : SPORT0508-1

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Hexachlorocyclopentadiene	U	0.00	163	330	ug/kg	1.0					
Hexachloroethane	U	0.00	163	330	ug/kg	1.0	JCB	09/08/97	1724	107546	2
Hexachloropropene	U	0.00	163	330	ug/kg	1.0					
Indeno(1,2,3-c,d)pyrene	U	0.00	163	330	ug/kg	1.0					
Isodrin	U	0.00	163	330	ug/kg	1.0					
Isophorone	U	0.00	163	330	ug/kg	1.0					
Isosafrole	U	0.00	163	330	ug/kg	1.0					
Kepone	U	0.00	163	330	ug/kg	1.0					
Methapyrilene	U	0.00	813	1650	ug/kg	1.0					
Methyl Methanesulfonate	U	0.00	163	330	ug/kg	1.0					
N-Nitrosodi-n-butylamine	U	0.00	163	330	ug/kg	1.0					
N-Nitrosodiethylamine	U	0.00	163	330	ug/kg	1.0					
N-Nitrosodimethylamine	U	0.00	163	330	ug/kg	1.0					
N-Nitrosodiphenylamine	U	0.00	163	330	ug/kg	1.0					
N-Nitrosodipropylamine	U	0.00	163	330	ug/kg	1.0					
N-Nitrosomethylethylamine	U	0.00	163	330	ug/kg	1.0					
N-Nitrosomorpholine	U	0.00	163	330	ug/kg	1.0					
N-Nitrosopiperidine	U	0.00	163	330	ug/kg	1.0					
N-Nitrosopyrolidine	U	0.00	163	330	ug/kg	1.0					
Naphthalene	U	0.00	163	330	ug/kg	1.0					
Nitrobenzene	U	0.00	163	330	ug/kg	1.0					
O,O,O-Triethylphosphorothioate	U	0.00	163	330	ug/kg	1.0					
Pentachlorobenzene	U	0.00	163	330	ug/kg	1.0					
Pentachloroethane	U	0.00	163	330	ug/kg	1.0					
Pentachloronitrobenzene	U	0.00	163	330	ug/kg	1.0					
Phenacetin	U	0.00	163	330	ug/kg	1.0					
Phenanthrene	U	0.00	163	330	ug/kg	1.0					
Pronamide	U	0.00	163	330	ug/kg	1.0					
Pyrene	U	0.00	163	330	ug/kg	1.0					
Pyridine	U	0.00	163	330	ug/kg	1.0					
Safrole	U	0.00	163	330	ug/kg	1.0					
Sulfotepp	U	0.00	163	330	ug/kg	1.0					
Thionazin	U	0.00	163	330	ug/kg	1.0					
a-Dimethylphenethylamine	U	0.00	163	330	ug/kg	1.0					
s(2-Chloroethoxy)methane	U	0.00	163	330	ug/kg	1.0					

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Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 09, 1997

Sample ID : SPORT0508-1

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
bis(2-Chloroethyl) ether	U	0.00	163	330	ug/kg	1.0					
bis(2-Ethylhexyl)phthalate	U	0.00	163	330	ug/kg	1.0	JCB	09/08/97	1724	107546	2
m-Dinitrobenzene	U	0.00	163	330	ug/kg	1.0					
m-Nitroaniline	U	0.00	163	330	ug/kg	1.0					
o-Nitroaniline	U	0.00	163	330	ug/kg	1.0					
o-Toluidine	U	0.00	163	330	ug/kg	1.0					
p-Dimethylaminoazobenzene	U	0.00	163	330	ug/kg	1.0					
p-Nitroaniline	U	0.00	163	330	ug/kg	1.0					
p-Phenylenediamine	U	0.00	325	660	ug/kg	1.0					
sym-Trinitrobenzene	U	0.00	813	1650	ug/kg	1.0					
Appendix IX - Herbicides - 3 items											
2,4,5-T	U	0.00	1.00	3.00	ug/kg	10.	JPA	09/09/97	1019	107552	3
2,4,5-TP	U	0.00	0.500	3.00	ug/kg	10.					
2,4-D	U	0.00	1.00	3.00	ug/kg	10.					
Appendix IX - Pesticides & PCBs - 29 items											
4,4'-DDD	U	0.00	0.666	1.33	ug/kg	1.0	TLD	09/08/97	1657	107551	4
4,4'-DDE	U	0.00	0.666	1.33	ug/kg	1.0					
4,4'-DDT		1.69	0.666	1.33	ug/kg	1.0					
Aldrin	U	0.00	0.333	0.670	ug/kg	1.0					
Chlordane	U	0.00	4.16	8.33	ug/kg	1.0					
Dieldrin	U	0.00	0.666	1.33	ug/kg	1.0					
Endosulfan I	U	0.00	0.333	0.670	ug/kg	1.0					
Endosulfan II	U	0.00	0.666	1.33	ug/kg	1.0					
Endosulfan sulfate	U	0.00	0.666	1.33	ug/kg	1.0					
Endrin	U	0.00	0.666	1.33	ug/kg	1.0					
Endrin aldehyde	U	0.00	0.666	1.33	ug/kg	1.0					
Heptachlor	U	0.00	0.333	0.670	ug/kg	1.0					
Heptachlor epoxide	U	0.00	0.333	0.670	ug/kg	1.0					
Methoxychlor	U	0.00	3.33	6.67	ug/kg	1.0					
PCB-1016	U	0.00	3.33	4.17	ug/kg	1.0					
PCB-1221	U	0.00	3.33	4.17	ug/kg	1.0					
PCB-1232	U	0.00	3.33	4.17	ug/kg	1.0					
PCB-1242	U	0.00	3.33	4.17	ug/kg	1.0					
PCB-1248	U	0.00	3.33	4.17	ug/kg	1.0					
PCB-1254	U	0.00	3.33	4.17	ug/kg	1.0					

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 09, 1997

Sample ID : SPORT0508-1

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
PCB-1260	U	0.00	3.33	4.17	ug/kg	1.0					
Parathion	U	0.00	0.833	1.67	ug/kg	1.0	TLD	09/08/97	1657	107551	4
Parathion, methyl	U	0.00	0.833	1.67	ug/kg	1.0					
Phorate	U	0.00	0.833	1.67	ug/kg	1.0					
Toxaphene	U	0.00	16.7	33.3	ug/kg	1.0					
alpha-BHC	J	0.649	0.333	0.670	ug/kg	1.0					
beta-BHC	U	0.00	0.333	0.670	ug/kg	1.0					
delta-BHC	U	0.00	0.333	0.670	ug/kg	1.0					
gamma-BHC	U	0.00	0.333	0.670	ug/kg	1.0					
Metals Analysis											
Mercury	U	0.00586	0.0143	0.200	mg/kg	1.0	RMJ	09/08/97	1548	107554	5
Silver	J	61.1	20.6	500	ug/kg	1.0	MBL	09/09/97	1036	107506	6
Arsenic		975	134	500	ug/kg	1.0					
Barium		2530	12.0	500	ug/kg	1.0					
Beryllium	J	31.9	6.55	250	ug/kg	1.0					
Cadmium	U	-157	10.1	250	ug/kg	1.0					
Cobalt	U	13.6	27.8	500	ug/kg	1.0					
Chromium		6010	30.1	500	ug/kg	1.0					
Copper		3680	55.3	500	ug/kg	1.0					
Nickel		586	48.3	500	ug/kg	1.0					
Lead		1300	66.1	250	ug/kg	1.0					
Antimony	U	66.6	89.6	500	ug/kg	1.0					
Selenium	U	-165	111	250	ug/kg	1.0					
Tin		666	54.4	500	ug/kg	1.0					
Thallium	U	-85.2	118	500	ug/kg	1.0					
Vanadium		5960	27.8	500	ug/kg	1.0					
Zinc		2270	56.8	1000	ug/kg	1.0					

The following prep procedures were performed:

GC/MS Acid Compounds	TSD	09/08/97	1500	107546 7
GC/MS Base/Neutral Compounds	TSD	09/08/97	1500	107546 7
Herbicides	JPB	09/08/97	1200	107552 8
Pesticides	JPB	09/08/97	1200	107551 7
Mercury	RMJ	09/08/97	1245	107554 5

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Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 09, 1997

Sample ID : SPORT0508-1

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
TRACE							CRB	09/08/97	2100	107506	9

Surrogate Recovery	Test	Percent%	Acceptable Limits
2,4,6-Tribromophenol	APP 9 ACID	87.3	(40.3 - 122.)
2-Fluorophenol	APP 9 ACID	85.7	(25.0 - 121.)
Phenol-d6	APP 9 ACID	93.5	(24.0 - 113.)
2-Fluorobiphenyl	APP 9 B/N	89.6	(30.0 - 115.)
Nitrobenzene-d5	APP 9 B/N	88.1	(23.0 - 120.)
p-Terphenyl-d14	APP 9 B/N	114.	(37.3 - 128.)
2,4-Dichlorophenylacetic acid	APP 9 HERBICIDES	112.	(51.9 - 180.)
4CMX	APP 9 PESTICIDES	72.9	(45.8 - 148.)
Dibutylchlorendate	APP 9 PESTICIDES	76.6	(30.7 - 143.)
Bromofluorobenzene	APP 9 VOA-8260	105.	(53.5 - 154.)
Dibromofluoromethane	APP 9 VOA-8260	108.	(63.4 - 136.)
Toluene-d8	APP 9 VOA-8260	106.	(72.1 - 137.)

M = Method	Method-Description
M 1	EPA 8260
M 2	EPA 8270
M 3	EPA 8151 modified
M 4	EPA 8080
M 5	EPA 7471
M 6	EPA 6010A
M 7	EPA 3550
M 8	EPA 8150
M 9	EPA 3050

GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
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Project Description: SUPSHIP-Portsmouth Detachment

Sample ID : SPORT0508-1

M = Method	Method-Description

Notes:
The qualifiers in this report are defined as follows:
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U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

Karen Blakeney
Reviewed By

PO Box 30712 • Charleston, SC 29417 • 2040 Savage Road • 29407

(803) 556-8171 • Fax (803) 766-1178

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STATE	GEL	EPI
FL	E87156/87294	E874
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SC	10120	10582
TN	02934	02934

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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 15, 1997

Sample ID	: SPORT0508-2
Lab ID	: 9709148-02
Matrix	: GroundH2O
Date Collected	: 09/06/97
Date Received	: 09/08/97
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Volatile Organics											
Appendix IX Volatiles - 55 items											
1,1,1,2-Tetrachloroethane	U	0.00	1.00	2.00	ug/l	1.0	JEB	09/11/97	1747	107664	1
1,1,1-Trichloroethane	U	0.00	1.00	2.00	ug/l	1.0					
1,1,2,2-Tetrachloroethane	U	0.00	1.00	2.00	ug/l	1.0					
1,1,2-Trichloroethane	U	0.00	1.00	2.00	ug/l	1.0					
1,1-Dichloroethane	U	0.00	1.00	2.00	ug/l	1.0					
1,1-Dichloroethylene	U	0.00	1.00	2.00	ug/l	1.0					
1,2,3-Trichloropropane	U	0.00	1.00	2.00	ug/l	1.0					
1,2-Dibromo-3-chloropropane	U	0.00	1.00	2.00	ug/l	1.0					
1,2-Dibromoethane	U	0.00	1.00	2.00	ug/l	1.0					
1,2-Dichlorobenzene	U	0.00	1.00	2.00	ug/l	1.0					
1,2-Dichloroethane	U	0.00	1.00	2.00	ug/l	1.0					
1,2-Dichloropropane	U	0.00	1.00	2.00	ug/l	1.0					
1,2-cis-Dichloroethylene	U	0.00	1.00	2.00	ug/l	1.0					
1,2-trans-Dichloroethylene	U	0.00	1.00	2.00	ug/l	1.0					
2-Butanone	J	2.92	2.00	10.0	ug/l	1.0					
2-Hexanone	U	0.00	5.00	10.0	ug/l	1.0					
4-Methyl-2-pentanone	U	0.00	5.00	10.0	ug/l	1.0					
Acetone		14.9	5.00	10.0	ug/l	1.0					
Acetonitrile	U	0.870	2.00	10.0	ug/l	1.0					
Acrolein	U	0.00	10.0	20.0	ug/l	1.0					
Acrylonitrile	U	0.00	10.0	20.0	ug/l	1.0					
Allyl Chloride	U	0.00	5.00	10.0	ug/l	1.0					
Benzene	U	0.00	1.00	2.00	ug/l	1.0					
Bromoform	U	0.00	1.00	2.00	ug/l	1.0					
Carbon Disulfide	U	0.00	2.00	10.0	ug/l	1.0					
Carbon Tetrachloride	U	0.00	1.00	2.00	ug/l	1.0					
Chlorobenzene	U	0.00	1.00	2.00	ug/l	1.0					

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1899 North Hobson Ave.
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Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 15, 1997

Sample ID : SPORT0508-2

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Chlorodibromomethane	U	0.00	1.00	2.00	ug/l	1.0					
Chloroethane	U	0.00	1.00	2.00	ug/l	1.0	JEB	09/11/97	1747	107664	1
Chloroform	U	0.00	1.00	2.00	ug/l	1.0					
Chloroprene	U	0.00	2.00	10.0	ug/l	1.0					
Dibromomethane	U	0.00	1.00	2.00	ug/l	1.0					
Dichlorobromomethane	U	0.00	1.00	2.00	ug/l	1.0					
Dichlorodifluoromethane	U	0.00	1.00	2.00	ug/l	1.0					
Ethylbenzene	U	0.00	1.00	2.00	ug/l	1.0					
Isobutyl Alcohol	U	0.00	10.0	20.0	ug/l	1.0					
Methacrylonitrile	U	0.00	5.00	10.0	ug/l	1.0					
Methyl Bromide	U	0.00	1.00	2.00	ug/l	1.0					
Methyl Chloride	U	0.00	1.00	2.00	ug/l	1.0					
Methyl Iodide	U	0.00	2.00	5.00	ug/l	1.0					
Methyl Methacrylate	U	0.00	2.00	10.0	ug/l	1.0					
Methylene Chloride	U	0.00	1.00	5.00	ug/l	1.0					
Propionitrile	U	0.00	10.0	20.0	ug/l	1.0					
Styrene	U	0.00	1.00	2.00	ug/l	1.0					
Tetrachloroethylene	U	0.00	1.00	2.00	ug/l	1.0					
Toluene	U	0.00	1.00	2.00	ug/l	1.0					
Trichloroethylene	U	0.00	1.00	2.00	ug/l	1.0					
Trichlorofluoromethane	U	0.00	1.00	2.00	ug/l	1.0					
Vinyl Acetate	U	0.00	5.00	10.0	ug/l	1.0					
Vinyl chloride	U	0.00	1.00	2.00	ug/l	1.0					
Xylenes (TOTAL)	U	0.00	1.00	4.00	ug/l	1.0					
bis(2-Chloromethylethyl)ether	U	0.00	10.0	20.0	ug/l	1.0					
cis-1,3-Dichloropropylene	U	0.00	1.00	2.00	ug/l	1.0					
trans-1,3-Dichloropropylene	U	0.00	1.00	2.00	ug/l	1.0					
trans-1,4-Dichloro-2-butene	U	0.00	1.00	2.00	ug/l	1.0					

Surrogate Recovery	Test	Percent%	Acceptable Limits
Bromofluorobenzene	APP 9 VOA-8260	110.	(73.8 - 128.)
Dibromofluoromethane	APP 9 VOA-8260	90.8	(63.9 - 139.)
Toluene-d8	APP 9 VOA-8260	99.4	(77.1 - 121.)

GENERAL ENGINEERING LABORATORIES
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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E874
NC	233	
SC	10120	10582
TN	02934	02934

Client:	Supervisor of Ship Building & Conversion
	SUPSHIP-Portsmouth Detachment-Env.
	1899 North Hobson Ave.
	North Charleston, South Carolina 29405-2106
Contact:	Mr. Bill Hiers
Project Description:	SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 15, 1997

Sample ID : SPORT0508-2

Surrogate Recovery	Test	Percent%	Acceptable Limits

M = Method	Method-Description
M 1	EPA 8260

Notes:
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This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

Karen Blakeney
Reviewed By

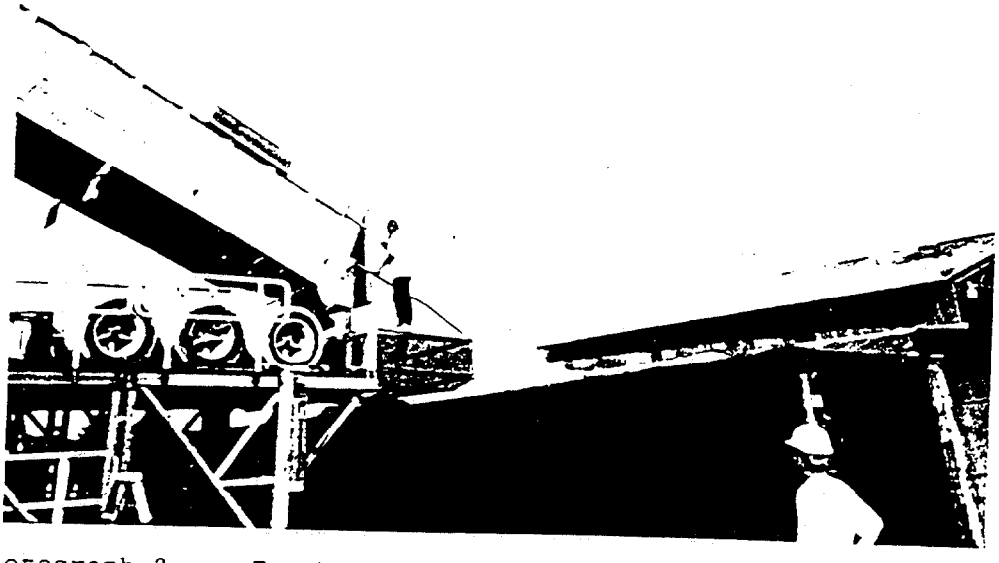
P O Box 30712 • Charleston, SC 29417 • 2040 Savage Road • 29414
(803) 556-8171 • Fax (803) 766-1178

9709148-02

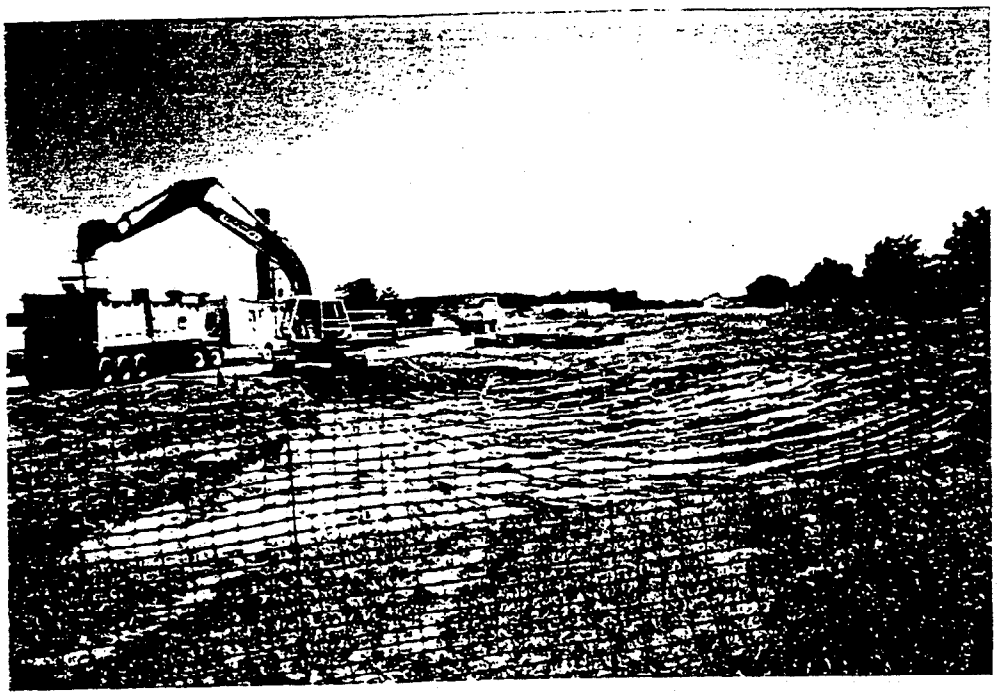
APPENDIX F

PHOTOGRAPHIC RECORD OF INTERIM REMEDIAL ACTION

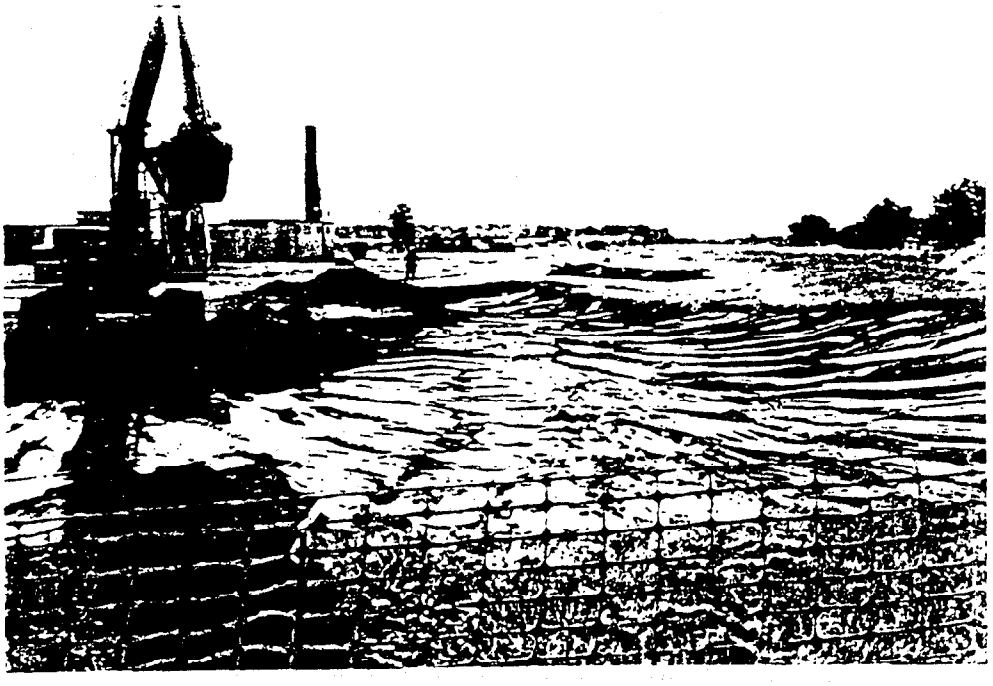
Photograph 1: Truck unloading contaminated soil into rail cars.



Photograph 2: Truck unloading contaminated soil into rail cars.



Photograph 3: SA 52, facing east during soil excavation.



Photograph 4: SA 52, facing east during soil excavation.

Photograph 5: SA 52, facing northeast during soil excavation.

Photograph 6: SA 52, facing south during soil excavation.

APPENDIX G

WASTE CHARACTERIZATION REPORT
INTERIM REMEDIAL ACTION

SITE 52 1308

WASTE CHARACTERIZATION REPORT

T#: 111665

☒ New Waste? ☐ Reapproval? *Previous Approval No.* _____ T#: _____

Section A - Treatment and Disposal

(please check one)

☒ Michigan Disposal Waste Treatment Plant
(Waste Stabilization and Treatment)
49350 N. I-94 Service Drive
Belleville, MI 48111
Customer Satisfaction: (800) 592-5489

☐ Michigan Recovery Systems, Inc.
(Waste Solvent Recovery, Fuel Blending)
36345 Van Born Road
Romulus, MI 48174
Customer Satisfaction: (800) 521-0998

☐ Wayne Disposal, Inc. – Subtitle C Landfill
(Secure Hazardous Waste Landfill)
49350 N. I-94 Service Drive
Belleville, MI 48111
Customer Satisfaction: (800) 592-5489

Are transportation, site or special services needed?

_____ Yes _____ No

If yes, please explain _____

Section B - Customer Information

SIC = 9711

Generator US EPA ID = FL8170024733

Generator NAVAL TRAINING CENTER (CODE 010E)

Facility Address 1350 GRACE HOPPER AVE

City ORLANDO State FL Zip 32813-8405

Mailing Address (if different) _____

City _____ State _____ Zip _____

Generator Contact MARK STEPHEN ZILL

Title DIRECTOR, ENVIRONMENTAL MANAGEMENT DIV.

Phone 407-646-4663 Fax 407-646-4197

EQ Customer No. 3414

Invoicing Company Omega Environmental

Address 4661 Hammermill Rd Suite B

City Tucker State GA Zip 30084

Country _____

Invoicing Contact _____

Phone _____ Fax _____

Technical Contact Chad Parish

Phone 770 621-9414 Fax 770 934-2451

Purchasing Contact _____

Is a Purchase Order or Release required for EQ to receive payment on this waste stream? ____ Yes __x__ No

If yes, please list P.O. and/or Release No: _____

Is this waste stream Surcharge Exempt? __x__ Yes ____ No

If yes, Surcharge Exemption Form must be submitted with this Waste Characterization Report and with every waste shipment.

Section C - Shipping and Handling Information

1) Is this waste Reactive, Shock Sensitive, Pyrophoric, Explosive, Infectious or Radioactive? ____ Yes __x__ No

If yes, please explain and/or call 1-800-592-5489 for assistance _____

2) Is this waste an Oxidizer? ____ Yes __x__ No

3) Shipping mode: ☐ Bulk Solid (Yd³ < 2000 lbs/yd³) ☒ Bulk Solid (Ton >2000 lbs/yd³) ☐ Bulk Liquids (gal)
☐ Cubic Yard Boxes ☐ Drums ☐ Other (palletized, 5 gallon pails, etc.) _____

4) Shipping volume per year _____ One time only volume (please explain) 3000 Tons

5) DOT shipping name RQ Hazardous Waste Solid, N.O.S.
Hazard Class 9 UN/NA Number NA 3077

Section D - Physical Characteristics

Color: Brown Odor (describe): None Free Liquids (%): 0 Solids (%): 100

2) pH Range: ☐ <2 ☐ 2 - 4.9 ☒ 5 - 9.9 ☐ 10 - 12.4 ☐ >12.5

3) Flash Point: ☐ <90 °F ☐ 90 - 140 °F ☐ >140 °F ☒ >200 °F

4) Physical state at 70 °F: ☒ Solid ☐ Dust ☐ Liquid ☒ Soil ☐ Sludge (non pumpable)

5) Does this waste contain debris? ____ Yes __x__ No
If yes, please describe _____

Section E - Generating Process and Regulatory Information

1) Waste common name: Pesticide Contaminated Soil

2) Provide a *detailed* description of the process(es) generating this waste (describe each step and attach a flow diagram, if available): Soil Clean up of a pesticide storage area. Ran the analysis base on generator knowledge of the site and coded for the hits. Micigan Act 451 was reviewed and none of the codes apply.

3) Describe the composition of the waste (attach analytical data or MSDS's, if available):

soil	0	to 100	%
		to	%
		to	%
		to	%
		to	%

Total = 100 %

4) Based upon RCRA waste regulations (40 CFR 261), Michigan Act 451 Rules, and TSCA regulations:

	Yes	No	Code or Comment
A) Is this an EPA RCRA hazardous waste (D, F, K, U or P)?	x		P037, P050, P051, P059, U036, U061
B) Does this waste leach Copper>100 mg/l or Zinc>500 mg/l?		x	
C) Is this an EPA RCRA Characteristic (D-coded) hazardous waste containing underlying hazardous constituents? If yes, please fill out UTS Certification Form provided.		x	
D) Is this a Michigan Act 451 nonhazardous liquid waste?		x	
E) Is this a Michigan Act 451 hazardous waste?		x	
F) Does this waste exceed LDR treatment standards?	x		
G) Does this waste contain free liquids? (use paint filter test)		x	
H) Does this waste contain metallic fines or powders?		x	
I) Does this waste contain greater than or equal to 500 ppmw VOC?		x	
J) Does this waste contain reactive cyanide above 250 ppm or reactive sulfide above 500 ppm?		x	
K) Is this a dioxin or furan bearing waste as per 40 CFR part 261.31?		x	
L) Does this waste contain HOCs >1000 ppm?		x	
M) Is this a liquid waste containing Nickel >134 mg/l or Thallium >130 mg/l?		x	
N) Does this waste contain asbestos?(friable or nonfriable?)		x	
P) Is this a PCB waste regulated by TSCA? If yes, please complete Section G.		x	

Section F - Reclamation/Recycling/Fuel Blending

(Complete for Michigan Recovery Systems, Inc. Only)

1) Heat value (BTU/lb): _____ 3) Chlorine(%): _____ 5) PCBs (total ppm): _____

2) Water (%): _____ 4) Solids (%): _____

Section G - PCB

(Complete only if you answered "yes" to Section E, Question 4P)

1) Does the waste contain PCBs at >50 ppm or is the PCB contamination from a source with concentration of >50 ppm? _____Yes _____No

2) Does this waste contain free liquids? (use paint filter test) _____Yes _____No

3) Is the non-liquid PCB waste in the form of soil, rags, or other debris? _____Yes _____No
If yes, it may be disposed at Wayne Disposal, Inc.

4) Do the PCB capacitors come from a PCB capacitor or equipment manufacturer? _____Yes _____No _____NA

5) Has the PCB Article (e.g., transformer, hydraulic machine, PCB-contaminated electrical equipment) been drained of

Section H - TCLP Regulatory Action Levels Certifications

Please indicate which constituent concentrations are below the regulatory level in column 1 or write in the actual level if the concentration is greater than the regulatory level in column 2:

Based on: ☒ Analysis ☐ Generator Knowledge (Is analysis attached? X Yes ___ No)

Code		(1) Concentration (mg/l)		(2) Actual Concentration
D004	Arsenic	N/A	<5	
D005	Barium		<100	
D006	Cadmium		<1	
D007	Chromium		<5	
D008	Lead		<5	
D009	Mercury		<0.2	
D010	Selenium		<1	
D011	Silver		<5	
001D	Copper		<100	
003D	Zinc		<500	
D012	Endrin		<0.02	
D013	Lindane		<0.4	
D014	Methoxychlor		<10	
D015	Toxaphene		<0.5	
D016	2,4-D		<10	
D017	2,4,5-TP(silvex)		<1	
D018	Benzene		<0.5	
D019	Carbon-Tetrachloride		<0.5	
D020	Chlordane		<0.03	
D021	Chlorobenzene		<100	
D022	Chloroform		<6.0	

Code		(1) Concentration (mg/l)		(2) Actual Concentrati
D023	O-Cresol	N/A	<200	
D024	M-Cresol		<200	
D025	P-Cresol		<200	
D026	Cresols		<200	
D027	1,4-Dichlorobenzene		<7.5	
D028	1,2-Dichloroethane		<0.5	
D029	1,1-Dichloroethylene		<0.7	
D030	2,4-Dinitrotoluene		<0.13	
D031	Heptachlor		<0.008	
D032	Hexachlorobenzene		<0.13	
D033	Hexachlorobutadiene		<0.5	
D034	Hexachloroethane		<3.0	
D035	Methyl Ethyl Ketone		<200	
D036	Nitrobenzene		<2	
D037	Pentachlorophenol		<100	
D038	Pyridine		<5	
D039	Tetrachloroethylene		<0.7	
D040	Trichloroethylene		<0.5	
D041	2,4,5-Trichlorophenol		<400	
D042	2,4,6-Trichlorophenol		<2	
D043	Vinyl Chloride		<0.02	

Section I - Benzene NESHAP 40 CFR 61, subpart FF

1) Does the waste stream come from a facility with one of the SIC codes listed under the NESHAP?
___Yes ___x___No If yes, which SIC Number?_____

2) Does the waste contain >10 % water? _____Yes _____No

3) Does the waste contain >1.0 mg/kg total Benzene? _____Yes _____No
If no to Question 3, stop here. If yes, please answer the remaining questions.

4) What is the total Benzene concentration in your waste? _____percent or _____ppmw.
(Do not use TCLP analytical results. Acceptable laboratory methods include 8020, 8240, 8260, 602, and 624.)

5) Does your company treat wastes from facilities with Total Annual Benzene (TAB) >10 Mg/year? _____Yes _____No

6) What is the TAB quantity for your facility? _____Mg/Year

NESHAP SIC CODES		
2812	2836	2875
2813	2841	2879
2816	2842	2891
2819	2843	2892
2821	2844	2893
2822	2851	2895
2823	2861	2899
2824	2865	2911
2833	2869	3312
2834	2873	4959
2835	2874	9511

Section J - Certification

I authorize EQ's Resource Team to add supplemental information to the waste approval file provided I am contacted and give verbal permission. I authorize EQ's Resource Team to obtain a sample from any waste shipment for purposes of verification and confirmation.

I certify that all information (including attached information) is complete and factual and is an accurate representation of the known and suspected hazards, pertaining to the waste described herein.

Signature Mark Stephen Ill Title DIRECTOR ENVIRONMENTAL MANAGEMENT

Printed Name MARK STEPHEN ILL Date 29 AUG 97

UNIVERSAL EQ CERTIFICATION (1/97)

LAND DISPOSAL RESTRICTION FORM
SUBPART CC WASTE DETERMINATION CERTIFICATION AND SURCHARGE EXEMPTION NOTIFICATION

Michigan Disposal Waste Treatment Plant 49350 N. I-94 Service Dr. Belleville, MI 48111 Ph: 800-592-5489 Fx:800-592-5329
Wayne Disposal, Inc. 49350 N. I-94 Service Dr. Belleville, MI 48111 Ph: 800-592-5489. Fx:800-592-5329
Michigan Recovery Systems, Inc. 36345 Van Born Rd. Romulus, MI 48174 Ph: 800-521-0998 Fx:313-326-5670

Please Check One: __x__ MDWTP _____ WDI _____ MRSI

Generator Name_____ Manifest Doc. No./Approval #/T#_____T# 111665

Generator Address_____

Generator USEPA ID No._____ State Manifest No._____

INSTRUCTIONS

- In Column 1 identify all USEPA hazardous waste codes that apply to this waste approval/shipment in the spaces provided below.
- In Column 2, identify the appropriate treatability group for each waste code: Non-Wastewater (NWW) or Wastewater (WW).
- In Column 3, in accordance with Subpart CC identify whether or not your waste contains >500 ppmw VOC (YES or NO), as identified as CCVOC in Attachment 1.
- In Column 4, enter the appropriate Subcategory, (See 268.40), if applicable, and also enter "Debris" if the waste is debris that will be treated using one of the alternative treatment technologies provided by 268.45.
- In Column 5, reference the appropriate paragraph(s) from Page 2 and 3 of this form. If your waste is surcharge exempt, please fill out paragraph N (On page 3).
- To expedite your approval, specify the concentration level of each constituent identified in your waste stream on Attachment 1. When shipping your waste, transfer the appropriate Reference Number(s) from Table 1 to Column 6 below, concentration data does not need to be entered in Attachment 1. [If the waste is a California List Waste, complete the boxes below appropriately and identify (in Column 6) the Reference Number(s) of the appropriate California List constituent(s) found in Attachment 1, Table 3.]

MAIN LINE ITEM #	1. HAZARDOUS WASTE CODE(S)	2. NWW or WW	3. SUBPART CC YES/NO	4. SUBCATEGORY	5. HOW MUST THE WASTE BE MANAGED?	6. REFERENCE NUMBER(S)
11.A	P037, P050, P051, P059, U036, U061	NWW	NO	N/A	A	N/A
11.B						
11.C						
11.D						

I hereby certify that all information submitted on this and all associated documents is complete and accurate to the best of my knowledge and information.

Generator Signature Mark Stephen Zill Title DIRECTOR ENVIRONMENTAL MANAGEMENT

Printed Name MARK STEPHEN ZILL Date 29 Aug 97

WASTE ACCEPTANCE GUIDELINES

In order for EQ's Resource Team to effectively manage the waste acceptance process and expedite your waste approval, we request that the following be submitted (at a minimum): a Waste Characterization Report, a representative sample, and appropriate analytical testing results. Once EQ has reviewed and accepted the submittal, an Approval Number will be assigned to your waste stream. Upon receipt of this Approval Number and your confirmation of EQ's price quote, you may proceed with the transport of your waste stream to an EQ facility. To arrange a mutually convenient time for delivery, contact our Scheduling Coordinators, toll-free at 1-800-TRK-TRAC (875-8722). We request a 48 hour advance notice.

INSTRUCTIONS FOR COMPLETION OF WASTE CHARACTERIZATION REPORT (WCR)

(To expedite your waste approval, please complete this form in its entirety)

Labeling your Documents and Sample: The Waste Acceptance Labels that accompany this WCR should be applied to your submittal as follows: (1) After completion of the largest label, apply it to the face of the sample container (if submitting a sample); (2) Use the EQ Quality Seal to ensure your sample is tamper resistant (label must cover a portion of the jar and lid); (3) Place one of the small T# labels on the upper right-hand corner of the WCR; and (4) place the remaining T# label on the corresponding line item on your completed Chain Of Custody Record.

Section A: Select the EQ facility which best meets your environmental management needs. The facility selected will be dependent upon the type of waste generated and your treatment and/or disposal preference(s).

Section B: This Section provides pertinent customer information. Please provide the generator's Standard Industrial Classification (SIC) Code which describes the specific industry generating the waste. Include the generator's EPA ID number. In the state of Michigan, a temporary EPA ID number may be obtained from the Michigan Department of Environmental Quality (MDEQ) by calling at (517) 373-2730. Any other generating state must contact their regional EPA office. If you have not obtained an EQ Account Number previously, please contact a member of the EQ Resource Team for a Credit Application. *Surcharge Exemption:* Please determine if your waste is surcharge exempt. Waste will be surcharge exempt if one of the following criteria is met: Ash from incineration of hazardous and nonhazardous waste; hazardous waste exempted by MDEQ rule making action; hazardous waste removed from a contaminated site listed pursuant to Section 6 of Act 307 or if hazardous waste is removed as part of a site clean-up activity at the expense of the state or federal government; solidified hazardous waste produced by a solidification facility in Michigan and licensed under Act 64; hazardous waste generated by a one-time closure or site clean-up activity in Michigan authorized by the director of the MDEQ; solids from an aggressive biological treatment facility; and/or emission control dust or sludge from the primary production of steel in electrical furnaces.

Section C: Shipping and handling information can be found in 49 CFR. The shipping mode and volume will assist in determining the appropriate environmental management facility and processing fees for your waste stream.

Section D: This Section may be based on generator knowledge.

Section E: The information provided in this Section should describe the generating process. It is advisable to include a diagram of the physical process generating the waste. Detailed descriptions of waste codes may be found in the 40 CFR Part 261.

Section F: Information in this Section will be collected from the sample submitted to Michigan Recovery Systems, Inc.

Section G: If your waste is regulated under TSCA, refer to 40 CFR Part 761.60 for assistance in completing this Section.

Section H: This Section may be based on generator knowledge or independent laboratory analysis. The extent of analysis required will be dependent upon the type of waste generated and regulatory permitting requirements for TSDF's.

Section I: Complete this Section ONLY if the SIC Code, which you have indicated in Section B above, appears in the box. Refer to 40 CFR Part 61, Subpart FF for more information.

A generator's signature must appear on the EQ Waste Characterization Report. If the generator has authorized a third-party to process this waste stream for environmental management, a written notice (on generator letterhead), must accompany your submittal. Although the EQ Resource Team is authorized to make certain modifications to the information provided, the addition or removal of waste codes must be approved by the generator.

For Assistance Contact Your EQ Resource Team at
1-800-KWALITY (592-5489)

How Must The Waste Be Managed?

A. THIS RESTRICTED WASTE REQUIRES TREATMENT TO THE APPLICABLE STANDARD.
This waste must be treated to the applicable performance based treatment standard set forth in 40 CFR Part 268 Subpart C, 268.32, Subpart D, 268.40 or RCRA Section 3004(d) prior to land disposal.

B. THIS HAZARDOUS DEBRIS IS SUBJECT TO THE ALTERNATIVE TREATMENT STANDARDS OF 40 CFR 268.45.

C. THIS RESTRICTED WASTE HAS BEEN TREATED TO THE PERFORMANCE STANDARDS.
I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and base this certification upon my inquiry of those individuals immediately responsible for obtaining this information. I believe that the treatment process has been operated and maintained properly so as to comply with the performance levels specified in 40 CFR part 268 Subpart D, and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA Section 3004(d) without impermissible dilution of the prohibited waste. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.

D. THIS RESTRICTED WASTE, FOR WHICH THE TREATMENT STANDARD IS EXPRESSED AS A SPECIFIED TECHNOLOGY, HAS BEEN TREATED BY THE SPECIFIED TECHNOLOGY.
I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.42. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.

E. THIS RESTRICTED WASTE CAN BE LAND DISPOSED WITHOUT TREATMENT.
I certify under penalty of law that I have personally examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA Section 3004(d). I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.

F. THIS RESTRICTED DEBRIS HAS BEEN TREATED IN ACCORDANCE WITH 40 CFR 268.45.
I certify under penalty of law that the debris has been treated in accordance with the requirements of 40 CFR 268.45. I am aware that there are significant penalties for making false certification, including the possibility of a fine and imprisonment.

G. THIS LAB PACK DOES NOT CONTAIN ANY WASTES IDENTIFIED AT APPENDIX IX TO PART 268.
I certify under penalty of law that I personally have examined and am familiar with the waste and that the lab pack does not contain any wastes identified at Appendix IV to part 268. I am aware that there are significant penalties for submitting a false certification including possibility of fine or imprisonment.

H. THIS RESTRICTED WASTE HAS BEEN TREATED TO REMOVE THE HAZARDOUS CHARACTERISTIC.
I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.40 to remove the hazardous characteristic. This decharacterized waste contains underlying hazardous constituents that require further treatment to meet universal treatment standards. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment.

I. THIS RESTRICTED WASTE HAS BEEN TREATED TO REMOVE THE HAZARDOUS CHARACTERISTIC AND BEEN TREATED FOR UNDERLYING HAZARDOUS CONSTITUENTS.
I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.40 to remove the hazardous characteristic, and that underlying hazardous constituents, as defined in 268.48 Universal Treatment Standards. I am aware that there are significant penalties for submitting false certification, including the possibility of fine and imprisonment.

THIS RESTRICTED WASTE IS SUBJECT TO AN EXEMPTION FROM LAND DISPOSAL.

(Please include the date the waste is subject to the prohibitions in Column 6)

This waste is subject to an exemption from a prohibition on the type of land disposal method utilized for the waste (such as, but not limited to, a case-by-case extension under 40 CFR Part 268.5, an exemption under 40 CFR 268.6, or a nationwide capacity variance under 40 CFR 269 Subpart C)

K. THIS RESTRICTED WASTE WITH TREATMENT STANDARDS EXPRESSED AS CONCENTRATIONS IN THE WASTE PURSUANT TO 268.43, IF COMPLIANCE WITH THE TREATMENT STANDARDS IN SUBPART D OF THIS PART IS BASED IN PART OR IN WHOLE ON THE ANALYTICAL DETECTION LIMIT ALTERNATIVE IN 268.439(c).

I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based on my inquiry of those individuals immediately responsible for obtaining information, I believe that the nonwastewater organic constituents have been treated by incineration in units operated in accordance with 40 CFR part 264, Subpart O, or 40 CFR part 265, Subpart O, or by combustion in fuel substitution units operating in accordance with the applicable technical requirements, and I have been unable to detect that nonwastewater organic constituents despite having used best good faith efforts to analyze for such constituents. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment.

L. THIS NON-HAZARDOUS WASTE STREAM REQUIRES SOLIDIFICATION PRIOR TO LANDFILLING.

M. THIS NON-HAZARDOUS WASTE STREAM DOES NOT REQUIRE TREATMENT PRIOR TO LANDFILL.

N. SURCHARGE EXEMPTION. This is a certification pursuant to section 11108(3) of Act 451 of 1994 (the Natural Resources and Environmental Protection Act) that the hazardous waste identified herein is exempt from the surcharge provided in the Act.

WASTE DESCRIPTION: _____

LINE ITEM: _____

QUANTITY AND UNITS: _____

This shipment of hazardous waste is exempt from the surcharge fees because the waste is:

_____ (a) Ash that results from the incineration of hazardous waste of incineration of solid waste as defined in part 115.

_____ (b) Hazardous waste exempted by rule because of its character or the treatment it has received.

_____ (c) Hazardous waste that is removed from a site of environmental contamination that is included in a list submitted to the legislature pursuant to section 20105, or hazardous waste that is removed as part of a site cleanup activity at the expense of the state or federal government.

_____ (d) Solidified hazardous waste produced by a solidification facility licensed pursuant to section 11123 and destined for land disposal.

_____ (e) Hazardous waste generated pursuant to a 1-time closure or site cleanup activity in his state if the closure or cleanup activity has been authorized in writing by the department. Hazardous waste resulting from the cleanup of inadvertent releases which occur after March 30, 1988 is not exempt from the fee.

_____ (f) Primary and secondary wastewater treatment solids from a wastewater treatment plant that includes an aggressive biological treatment facility as defined in section 3005(j)(12)(B) of Subtitle C of the Solid Waste Disposal Act, 42 U.S.C. 6925.

_____ (g) Emission control dust or sludge from the primary production of steel in electric furnaces.

Ref. No.	TABLE 1 - Hazardous Constituents	CAS NO.	NWW mg/kg	WW mg/l	CC VOC 1	M VOC 2	CONCENTRATION (Please specify mg/kg or mg/l)
1	Acenaphthene	83-32-9	3.4	0.059			
2	Acenaphthylene	208-96-8	3.4	0.059			
3	Acetone+	67-64-1	160	0.28	X	X	
4	Acetonitrile	75-05-8	38	5.6	X		
5	Acetophenone	96-86-2	9.7	0.01			
6	2-Acetylaminofluorene	53-96-3	140	0.059			
7	Acrolein	107-02-8	N/A	0.29	X		
8	Acrylonitrile	107-13-1	84	0.24	X		
9	Acrylamide	79-06-1	23	19			
10	Aldrin	309-00-2	0.066	0.021			
11	4-Aminobiphenyl	92-67-1	N/A	0.13			
12	Aniline	62-53-3	14	0.81			
13	Anthracene	120-12-7	3.4	0.059			
14	Aramite	140-57-8	N/A	0.36			
15	alpha-BHC	319-84-6	0.066	0.00014			
16	beta-BHC	319-85-7	0.066	0.00014			
17	delta-BHC	319-86-8	0.066	0.023			
18	gamma-BHC (Lindane)	58-89-9	0.066	0.0017			
19	Benz(a)anthracene	56-55-3	3.4	0.059			
20	Benzal chloride	98-87-3	6	0.055			
21	Benzene+	71-43-2	10	0.14	X	X	
22	Benzo(a)pyrene	50-32-8	3.4	0.061			
23	Benzo(b)fluoranthene	205-99-2	6.8	0.11			
24	Benzo(k)fluoranthene	207-08-9	6.8	0.11			
25	Benzo(g,h,i)perylene	191-24-2	1.8	0.0055			
26	bis(2-Chloroethoxy)methane	111-91-1	7.2	0.036			
27	bis(2-Chloroethyl)ether	111-44-4	6	0.033			
28	bis(2-Chloroisopropyl) ether	39638-32-9	7.2	0.055	X		
29	bis(2-Ethylhexyl) phthalate	117-81-7	28	0.28			
30	Bromodichloromethane	75-27-4	15	0.35	X	X	
31	Bromomethane (Methyl bromide)	74-83-9	15	0.11	X		
32	4-Bromophenyl phenyl ether	101-55-3	15	0.055			
33	n-Butyl alcohol+	71-36-3	2.6	5.6	X	X	
34	Butyl benzyl phthalate	85-68-7	28	0.017			
35	2-sec-Butyl-4,6-dinitrophenol (Dinoseb)	88-85-7	2.5	0.066			
36	Carbon disulfide+	75-15-0	4.8*	3.8		X	
37	Carbon tetrachloride+	56-23-5	6	0.057	X	X	
38	Chlordane (alpha and gamma isomers)	57-74-9	0.26	0.0033			
39	p-Chloroaniline	106-47-8	16	0.46			
40	Chlorobenzene+	108-90-7	6	0.057	X	X	
41	Chlorobenzilate	510-15-6	N/A	0.1			
42	2-Chloro-1, 3-butadiene (Chloroprene)	126-99-8	0.28	0.057	X		
43	Chlorodibromomethane	124-48-1	15	0.057	X	X	
44	Chloroethane	75-00-3	6	0.27	X	X	
45	Chloroform	67-66-3	6	0.046	X	X	
46	p-Chloro-m-cresol	59-50-7	14	0.018			
47	2-Chloroethyl vinyl ether	110-75-8	N/A	0.062	X	X	
48	Chloromethane (Methyl chloride)	74-87-3	30	0.19	X		
49	2-Chloronaphthalene	91-58-7	5.6	0.055			
50	2-Chlorophenol	95-57-8	5.7	0.044			
51	3-Chloropropylene (Allyl Chloride)	107-05-1	30	0.036			
52	Chrysene	218-01-9	3.4	0.059			

54	m-Cresol (3-Methyl phenol)+	108-39-4	5.6	0.77		X	

68	m-Dichlorobenzene (1,3-Dichlorobenzene)	541-73-1	6	0.036	X	X	
69	o-Dichlorobenzene (1,2-Dichlorobenzene)+	95-50-1	6	0.088	X	X	
70	p-Dichlorobenzene (1,4-Dichlorobenzene)	106-46-7	6	0.09	X	X	
71	Dichlorodifluoromethane	75-71-8	7.2	0.23	X		
72	1,1-Dichloroethane	75-34-3	6	0.059	X	X	
73	1,2-Dichloroethane	107-06-2	6	0.21	X	X	
74	1,1-Dichloroethylene	75-35-4	6	0.025	X		
75	trans-1,2-Dichloroethylene	156-60-5	30	0.054	X	X	
76	2,4-Dichlorophenol	120-83-2	14	0.044			
77	2,6-Dichlorophenol	87-65-0	14	0.044			
78	2,4-Dichlorophenoxyacetic acid (2,4-D)	94-75-7	10	0.72			
79	1,2-Dichloropropane	78-87-5	18	0.85	X	X	
80	cis-1,3-Dichloropropylene	10061-01-5	18	0.036	X	X	
81	trans-1,3-Dichloropropylene	10061-02-6	18	0.036	X	X	
82	Dieldrin	60-57-1	0.13	0.017			
83	Diethyl phthalate	84-66-2	28	0.2			
84	p-Dimethylaminoazobenzene	60-11-7	N/A	0.13			
85	2,4-Dimethyl phenol	105-67-9	14	0.036			
86	Dimethyl phthalate	131-11-3	28	0.047			
87	Di-n-butyl phthalate	84-74-2	28	0.057			
88	1,4-Dinitrobenzene	100-25-4	23	0.32			
89	4,6-Dinitro-o-cresol	534-52-1	160	0.28			
90	2,4-Dinitrophenol	51-28-5	160	0.12			
91	2,4-Dinitrotoluene	121-14-2	140	0.32			
92	2,6-Dinitrotoluene	606-20-2	28	0.55			
93	Di-n-octyl phthalate	117-84-0	28	0.017			
94	Di-n-propylnitrosamine	621-64-7	14	0.4			
95	1,4-Dioxane	123-91-1	170	12	X		
96	Diphenylamine	122-39-4	13	0.92			
97	Diphenylnitrosamine	86-30-6	13	0.92			
98	1,2-Diphenylhydrazine	122-66-7	N/A	0.087			
99	Disulfoton	298-04-4	6.2	0.017			
100	Endosulfan I	959-98-9	0.066	0.023			
101	Endosulfan II	33213-65-9	0.13	0.029			
102	Endosulfan sulfate	1031-07-8	0.13	0.029			
103	Endrin	72-20-8	0.13	0.0028			
104	Endrin aldehyde	7421-93-4	0.13	0.025			

Ref. No.	TABLE 1 - Hazardous Constituents	CAS NO.	NWW mg/kg	WW mg/l	CC VOC 1	M VOC 2	CONCENTRATIO N (Please specify mg/kg or mg/l)
105	2-Ethoxyethanol (F005)+	110-80-5	CMBST	CMBST		X	
106	Ethyl acetate+	141-78-6	33	0.34	X	X	
107	Ethyl benzene+	100-41-4	10	0.057	X	X	
108	Ethyl ether+	60-29-7	160	0.12	X	X	
109	Ethyl methacrylate	97-63-2	160	0.14			
110	Ethylene oxide	75-21-8	N/A	0.12	X		
111	Famphur	52-85-7	15	0.017			
112	Fluoranthene	206-44-0	3.4	0.068			
113	Fluorene	86-73-7	3.4	0.059			
114	Heptachlor	76-44-8	0.066	0.0012			
115	Heptachlor eporide	1024-57-3	0.066	0.016			
116	Hexachlorobenzene	118-74-1	10	0.055			
117	Hexachlorobutadiene	87-68-3	5.6	0.055	X		
118	Hexachlorocyclopentadiene	77-47-4	2.4	0.057			
119	HxCDDs (All Hexachlorodibenzo-p-dioxins)	N/A	0.001	0.000063			
120	HxCDFs (All Hexachlorodibenzofurans)	N/A	0.001	0.000063			
121	Hexachloroethane	67-72-1	30	0.055			
122	Hexachloropropylene	1888-71-7	30	0.035			
123	Indeno (1,2,3-c,d) pyrene	193-39-5	3.4	0.0055			
124	Iodomethane	74-88-4	65	0.19			
125	Isobutyl alcohol (Isobutanol)+	78-83-1	170	5.6	X	X	
126	Isodrin	465-73-6	0.066	0.021			
127	Isosafrole	120-58-1	2.6	0.081			
128	Kepone	143-50-0	0.13	0.0011			
129	Methacrylonitrile	126-98-7	84	0.24			
130	Methanol+	67-56-1	0.75*	5.6	X	X	
131	Methapyrilene	91-80-5	1.5	0.081			
132	Methoxychlor	72-43-5	0.18	0.25			
133	3-Methylcholanthrene	56-49-5	15	0.0055			
134	4,4-Methylene bis(2-chloroaniline)	101-14-4	30	0.5			
135	Methylene chloride+	75-09-2	30	0.089	X	X	
136	Methyl ethyl ketone+	78-93-3	36	0.28	X	X	
137	Methyl isobutyl ketone+	108-10-1	33	0.14	X	X	
138	Methyl methacrylate	80-62-6	160	0.14			
139	Methyl methansulfonate	66-27-3	N/A	0.018			
140	Methyl parathion	298-00-0	4.6	0.014			
141	Naphthalene	91-20-3	5.6	0.059	X		
142	2-Naphthylamine	91-59-8	N/A	0.52			
143	o-Nitroaniline	88-74-4	14	0.27			
144	p-Nitroaniline	100-01-6	28	0.028			
145	Nitrobenzene+	98-95-3	14	0.068		X	
146	5-Nitro-o-toluidine	99-55-8	28	0.32			
147	o-Nitrophenol	88-75-5	13	0.028			
148	p-Nitrophenol	100-02-7	29	0.12			
149	2-Nitropropane (F005)+	79-46-9	CMBST	CMBST		X	
150	N-Nitrosodiethylamine	55-18-5	28	0.4			
151	N-Nitrosodimethylamine	62-75-9	2.3	0.4			
152	N-Nitroso-di-n-butylamine	924-16-3	17	0.4	X		
153	N-Nitrosomethylethylamine	10595-95-6	2.3	0.4			

Ref. No.	TABLE 1 - Hazardous Constituents	CAS NO.	NWW mg/kg	WW mg/l	CC VOC 1	M VOC 2	CONCENTRATIO N (Please specify mg/kg or mg/l)
158	Total PCBs	1336-36-3	10	0.1			
159	Pentachlorobenzene	608-93-5	10	0.055			
160	PeCDDs (All Pentachlorodibenzo-p-dioxins)	N/A	0.001	0.000063			
161	PeCDFs (All Pentachlorodibenzofurans)	N/A	0.001	0.000035			
162	Pentachloroethane	76-01-7	6	0.055			
163	Pentachloronitrobenzene	82-68-8	4.8	0.055			
164	Pentachlorophenol	87-86-5	7.4	0.089			
165	Phenacetin	62-44-2	16	0.081			
166	Phenanthrene	85-01-8	5.6	0.059			
167	Phenol	108-95-2	6.2	0.039			
168	Phorate	298-02-2	4.6	0.021			
169	Phthalic acid	100-21-0	28	0.055			
170	Phthalic anhydride	85-44-9	28	0.055			
171	Pronamide	23950-58-5	1.5	0.093			
172	Propanenitrile (Ethyl cyanide)	107-12-0	360	0.24	X		
173	Pyrene	129-00-0	8.2	0.067			
174	Pyridine+	110-86-1	16	0.014	X	X	
175	Safrole	94-59-7	22	0.081			
176	Silvex (2,4,5-TP)	93-72-1	7.9	0.72			
177	1,2,4,5-Tetrachlorobenzene	95-94-3	14	0.055			
178	TCDDs (All Tetachlorodibenzo-p-dioxins)	N/A	0.001	0.000063			
179	TCDFs (All Tetrachlorodibenzofurans)	N/A	0.001	0.000063			
180	1,1,1,2-Tetrachloroethane	630-20-6	6	0.057	X		
181	1,1,2,2-Tetrachloroethane	79-34-5	6	0.057	X	X	
182	Tetrachloroethylene+	127-18-4	6	0.056	X	X	
183	2,3,4,6-Tetrachlorophenol	58-90-2	7.4	0.03			
184	Toluene+	108-88-3	10	0.08	X	X	
185	Toxaphene	8001-35-2	2.6	0.0095			
186	Tribromomethane (Bromoform)	75-25-2	15	0.63	X	X	
187	1,2,4-Trichlorobenzene	120-82-1	19	0.055	X		
188	1,1,1-Trichloroethane+	71-55-6	6	0.054	X	X	
189	1,1,2-Trichloroethane+	79-00-5	6	0.054	X	X	
190	Trichloroethylene+	79-01-6	6	0.054	X	X	
191	Trichloromonofluoromethane+	75-69-4	30	0.02	X	X	
192	2,4,5-Trichlorophenol	95-95-4	7.4	0.18			
193	2,4,6-Trichlorophenol	88-06-2	7.4	0.035			
194	2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)	93-76-5	7.9	0.72			
195	1,2,3-Trichloropropane	96-18-4	30	0.85	X		
196	1,1,2-Trichloro- 1,2,2-trifluoroethane+	76-13-1	30	0.057		X	
197	tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.1	0.11			
198	Vinyl chloride	75-01-4	6	0.27	X		
199	Xylenes+	1330-20-7	30	0.32	X	X	
200	Antimony	7440-36-0	2.1*	1.9			
201	Arsenic	7440-38-2	5.0*	1.4			
202	Barium	7440-39-3	7.6*	1.2			
203	Beryllium	7440-41-7	0.014*	0.82			
204	Cadmium	7440-43-9	0.19*	0.69			
205	Chromium (Total)	7440-47-3	0.86*	2.77			
206	Cyanides (Total)	57-12-5	590	1.2			
207	Cyanides (Amenable)	57-12-5	30	0.86			

Ref. No.	TABLE 1 - Hazardous Constituents	CAS NO.	NWW mg/kg	WW mg/l	CC VOC 1	M VOC 2	CONCENTRATIO N (Please specify mg/kg or mg/
209	Lead	7439-92-1	0.37*	0.69			
210	Mercury (retort residues)	7439-97-6	0.20*	N/A			
211	Mercury (all others)	7439-97-6	0.025*	0.15			
212	Nickel	7440-02-0	5.0*	3.98			
213	Selenium	7782-49-2	0.16*	0.82			
214	Silver	7440-22-4	0.30*	0.43			
215	Sulfide	18496-25-8	N/A	14			
216	Thallium	7440-28-0	0.078*	1.4			
217	Vanadium	7440-62-2	0.23*,**	4.3			
218	Zinc	7440-66-6	5.3*,**	2.61			
219	A2213	30558-43-1	1.4	0.042			
220	Aldicarb sulfone	1646-88-4	0.28	0.056			
221	Barban	101-27-9	1.4	0.056			
222	Bendiocarb	22781-23-3	1.4	0.056			
223	Bendiocarb phenol	22961-82-6	1.4	0.056			
224	Benomyl	17804-35-2	1.4	0.056			
225	Butylate	2008-41-5	1.4	0.042			
226	Carbaryl	63-25-2	0.14	0.006			
227	Carbenzadim	10605-21-7	1.4	0.056			
228	Carbofuran	1563-66-2	0.14	0.006			
229	Carbofuran phenol	1563-38-8	1.4	0.056			
230	Carbosulfan	55285-14-8	1.4	0.028			
231	m-Cumenyl methylcarbamate	64-00-6	1.4	0.056			
232	Cycloate	1134-23-2	1.4	0.042			
233	Diethylene glycol, dicarbamate	5952-26-1	1.4	0.056			
234	Dimetilan	644-64-4	1.4	0.056			
235	Dithiocarbamates (total)	137-30-4	28	0.028			
236	EPTC	759-94-4	1.4	0.042			
237	Formetanate hydrochloride	23422-53-9	1.4	0.056			
238	Formparanate	17702-57-7	1.4	0.056			
239	3-Iodo-2-propynyl n-butylcarbamate	55406-53-6	1.4	0.056			
240	Isolan	119-38-0	1.4	0.056			
241	Methiocarb	2032-65-7	1.4	0.056			
242	Methomyl	16752-77-5	0.14	0.028			
243	Metolcarb	1129-41-5	1.4	0.056			
244	Mexacarbate	315-18-4	1.4	0.056			
245	Molinate	2212-67-1	1.4	0.042			
246	Oxamyl	23135-22-0	0.28	0.056			
247	Pebulate	1114-71-2	1.4	0.042			
248	o-Phenylenediamine	95-54-5	5.6	0.056			
249	Physostigmine	57-47-6	1.4	0.056			
250	Physostigmine salicylate	57-64-7	1.4	0.056			
251	Promecarb	2631-37-0	1.4	0.056			
252	Propham	122-42-9	1.4	0.056			
253	Propoxur	114-26-1	1.4	0.056			
254	Prosulfocarb	52888-80-9	1.4	0.042			
255	Thiodicarb	59669-26-0	1.4	0.019			
256	Thiophanate-methyl	23564-05-8	1.4	0.056			
257	Tirpate	26419-73-8	0.28	0.056			
258	Triallate	2303-17-5	1.4	0.042			
259	Triethylamine	101-44-8	1.5	0.081			
260	Vernolate	1929-77-7	1.4	0.042			

Ref. No.	TABLE 2 - Hazardous Constituents	CAS NO.	NWW mg/kg	WW mg/l	CC VOC 1	M VOC 2	CONCENTRATION (Please specify mg/kg or mg/l)
	TABLE 2 -SUBPART CC ADDENDUM						
261	Bromobenzene	108-86-1			X		
262	Allyl alcohol	107-05-1			X		
263	Benzyl chloride	100-44-7			X		
264	Bromoacetone	598-31-2			X		
265	Bromochloromethane	74-97-5			X		
266	tert-Butyl alcohol	75-65-0			X		
267	n-Butyl benzene	104-51-8			X		
268	sec-Butyl benzene	135-98-8			X		
269	tert-Butyl benzene	98-06-6			X		
270	2-Chloroacrylonitrile	920-37-6			X		
271	2-Chloroethanol	107-07-03			X		
272	Chloromethyl methyl ether	107-30-2			X		
273	2-Chlorotoluene	95-49-8			X		
274	4-Chlorotoluene	106-43-4			X		
275	Crotonaldehyde	123-73-9			X		
276	cis-1,2-Dichloroethylene	156-59-2			X		
277	1,3-Dichloropropane	142-28-9			X		
278	2,2-Dichloropropane	594-20-7			X		
279	1,3-Dichloro-2-propanol	96-23-1			X		
280	1,1-Dichloropropene	563-58-6			X		
281	Epichlorhydrin	106-89-8			X		
282	Ethanol	64-17-5			X		
283	Ethylene glycol	107-21-1			X		
284	Hexafluoro-2-methyl-2-propanol	515-14-6			X		
285	Hexafluoro-2-propanol	920-66-1			X		
286	Isopropyl alcohol (2-propanol)	67-63-0			X		
287	p-Isopropyl toluene	99-87-6			X		
288	Isopropylbenzene	98-82-8			X		
289	Paraldehyde	123-63-7			X		
290	2-Pentanone	107-87-9			X		
291	2-Picoline	109-06-8			X		
292	Propionitrile	107-12-0			X		
293	1-Propanol	71-23-8			X		
294	n-Propylbenzene	103-65-1			X		
295	Styrene	100-42-5			X		
296	o-Toluidine	95-53-4			X		
297	1,2,3-Trichlorobenzene	87-61-6			X		
298	1,2,4-Trimethyl benzene	95-63-6			X		
299	1,3,5-Trimethyl benzene	108-67-8			X		
	TABLE 3 - CALIFORNIA LIST WASTES						
C1	Free Cyanides (Liquids)>1000 mg/l						
C2	Nickel>=134 mg/l						
C3	Thallium>=130 mg/l						
C4	PCB's (Liquid)>=50 ppm						
C5	Halogenated Organic Carbon (Liquid)>1000 mg/kg						

307	Methanethiol	74-93-1					
308	2-Butanethiol	513-53-1					
309	Dimethyl sulfide	75-18-3					
310	Thioglycolic acid	68-11-1					
311	Thiram	137-26-8					
312	Thionyl chloride	7719-09-7					
313	Diethyl sulfide	352-93-2					
314	Ethanethiol	75-08-1					

* "Concentration in mg/l TCLP"

** Not Underlying Hazardous Constituents. (See 60 FR. Jan. 3, 1995)

\- F001 - F005 Solvents

1 CCVOC refers to Subpart CC which requires the generator to identify to their Treatment. Storage.or Disposal Facilities the volatile organic constituents of the waste.

2 Michigan Disposal Waste Treatment Plant's air permit requires EQ to track certain volatile organic compounds it receives.